2012
West Virginia
State Health Profile

Shaping safe and healthy communities

Healthy

People

Healthy

Communities

West Virginia Bureau for Public Health
Department of Health & Human Resources

Your Health
Your Safety
Our Purpose

WEST VIRGINIA
Department of
Health & Human Resources

West Virginia State Health Profile

West Virginia Department of Health and Human Resources

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Table of Contents

Table of Contents

Table of Contents

Table of Contents

Executive Summary

In 2012, the West Virginia Bureau for Public Health conducted a State Public Health System Assessment, a Public Health System Partner Survey, and created a State Health Profile. Together, these documents will be used to identify priorities and drive our State Public Health Improvement Plan. The report focuses specifically on the State Health Profile and focuses on the health status of the people of West Virginia.

The Profile is part of an ongoing broader community health improvement process. This process uses the State Public Health System Assessment data to identify priorities, develop and implement strategies for action, and establish accountability to ensure measurable health improvement. These elements form the basis of a state health improvement plan (SHIP).

The report highlights selected indicators, beginning with a Key Indicators at a Glance category, followed by 10 other broad categories: Demographics; Health Behaviors; Infant, Child, & Adolescent Health; Healthcare Access & Quality; Mortality; Mental Health; Communicable Diseases; Cancer; Chronic Diseases; and Community & Environment.

Key Indicators at a Glance

Key Indicators	WV Trend*	US	WV Rank	Other State Ranks	
				#1	#50
Demographics					
Education (percent 25 years or older high school graduate or higher)[1]	2000 75.2% 2011 90.4%	85.9%	13	Montana (92.3%)	Wyoming (71.1%)
High School graduation rate (percent of incoming ninth-graders)[6]	2000 75.3% 2011 77.3%	74.7%	22	Wisconsin (89.6%)	Nevada (56.3%)
Median household income (dollars per household)[6]	2000 $39,546 2011 $44,126	$50,831	42	New Hampshire ($68,735)	Mississippi ($39,363)
Personal income, per capita (dollars per person)[6]	2000 $21,049 2011 $31,999	$39,040	48	Connecticut ($54,877)	Mississippi ($31,046)
All persons in poverty (percent)[1]	2000 17.9% 2011 18.6%	15.9%	41	New Hampshire (8.8%)	Mississippi (22.6%)
Children in poverty (percent of persons under 18)[6]	2000 22.6% 2011 20.3%	21.5%	25	New Hampshire (6.2%)	Mississippi (33.7%)
Unemployed (percent adult, seasonally adjusted)[2]	2000 5.5% 2012 7.4%	8.3%	25	North Dakota (3%)	Nevada (12%)
Health Behaviors					
Current smoking (percent of population)[6]	2000 27.1% 2011 26.8%	17.3%	50	Utah (9.1%)	NA
Smoked in last 30 days (percent high school students)[4]	2003 28.5% 2011 16.3%	18.1%	32	Utah^ (5.9%)	Kentucky^ (24.1%)
Consumption of fruit two or more times per day(percent of adults)[8]	2000 30% 2009 25.3%	32.5 %	20	New York (38.9%)	Mississippi (22.9%)

Key Indicators at a Glance

Key Indicators	WV Trend*		US	WV Rank	Other State Ranks	
					#1	#50
Consumption of vegetables three or more times per day (percent of adults)[8]	2000 29.9% 2009 22.1%	🔴	26.3%	23	Tennessee (33%)	Louisiana (21.3%)
Childhood obesity (percent children ages 10 to 17)[5]	2003 20.9% 2007 18.9%	🟢	16.4%	42	Oregon (9.6%)	Mississippi (21.9%)
Obesity, high school youth (percent high school students)[4]	2003 13.6% 2011 9.5%	🟢	13%	33	Colorado^ (7.3%)	Alabama^ (17%)
Obesity (percent of population)[6]	2000 24.6% 2011 32.9%	🔴	27.5%	48	Colorado (21.4%)	Mississippi (34.5%)
Overweight (percent of adults)[11]	2000 36.5% 2011 36.5%	🔴	35.7%	41	Hawaii (33.8%)	Alaska (38.9%)
Physical activity (percent of adults)[6]	2000 56.3% 2011 67.1%	🔴	76.1%	49	Oregon (82.5%)	Mississippi (67%)
Physical activity (percent high school students active at least 60 min per day less than 5 days)[4]	2007 57.2% 2011 47.6%	🔴	50.5%	32	Montana^ (45.3%)	Louisiana^ (62.1%)
Excessive drinking (percent of adults)[10]	2002 11.9% 2010 9.6%	🟢	16.09%	3	Tennessee (7.3%)	Wisconsin (22.9%)
Binge drinking (percent of population)[6]	2000 8.5% 2011 9.1%	🔴	15.5%	3	Tennessee (6.7%)	Wisconsin (22.8%)
Drank alcohol in past 30 days (percent high school students)[4]	2003 44.4% 2011 33.8%	🟢	38.7%	14	Utah^ (15%)	Louisiana^ (44.4%)
Used marijuana in past 30 days (percent high school students)[4]	2003 23.1% 2011 15.1%	🟢	23.1%	16	Utah^ (9.6%)	New Hampshire^ (28.4%)
Infectious Disease (cases per 100,000 population)[6]	2000 10.8 2011 2.3	🟢	10.3	1	NA	Alaska (25.1)

Key Indicators at a Glance

Key Indicators	WV Trend*	US	WV Rank	Other State Ranks	
				#1	#50
Teen birth rate (per 1,000 women aged 15 to 19)[6]	2000 48.8 2011 48.8	41.5	35	New Hampshire (19.8)	Mississippi (65.7)
Rarely or never wore a seat belt (percent high school students)[4]	2003 15.2% 2011 13.8%	7.7%	34	Iowa^ (4.4%)	South Dakota^ (20.1%)
Rarely or never wore a bicycle helmet (percent high school students)[4]	2003 84.9% 2011 85.8%	87.5%	14	Vermont^ (52.7%)	Louisiana, Mississippi^ (95.1%)
Violent crime (offenses per 100,000 population)[6]	2000 249 2011 315	403.6	24	Maine (122)	Nevada (661)
Cholesterol check (percent of adults)[6]	2000 69% 2011 80.4%	76.9%	13	Massachusetts (83.9%)	Utah (67.5%)
Community and Environment					
Air pollution (micrograms of fine particles per cubic meter)[6]	2000 NA 2011 10.8	10.8	41	Wyoming (5.2)	California (15.1)
Childhood lead poisoning (percent of those tested ages 1-5 with BLLs 10 or more µg/dL)[3]	2000 1.47% 2010 0.71%	0.61%	22	Nevada^ (0.18%)	Pennsylvania^ (1.89%)
Occupational fatalities (deaths per 100,000 workers)[6]	2000 8.8 2011 7.7	4	45	Minnesota (2.5)	Alaska (10.6)
Health Outcomes					
Premature death (years of potential life lost per 100,000 population)[6]	2000 8,248 2011 9,865	7,279	45	Massachusetts (5,481)	Mississippi (10,976)

Key Indicators at a Glance

Key Indicators	WV Trend*	US	WV Rank	Other State Ranks	
				#1	#50
Preventable hospitalizations (number per 1,000 Medicare enrollees)[6]	2001 120.3 2011 100.7	68	49	Hawaii (25.6)	Kentucky (103.8)
Low birth weight (percent of births under 2500 grams weight)[6]	2000 8.3% 2011 9.5%	8.2%	45	Alaska (5.9%)	Mississippi (11.8%)
Preterm births (percent of births under 37 weeks gestation)[6]	2000 12.4% 2011 13.5%	11.4%	47	Alaska (8.8%)	Mississippi (14.7%)
Infant mortality (per 1,000 live births)[6]	2000 8.8 2011 7.6	6.7	37	New Hampshire (4.7)	Mississippi (10)
Health status (percent reporting fair or poor health)[6]	2000 23.9% 2011 23.4%	14.7%	49	Alaska (10.7%)	Mississippi (23.7%)
Poor mental health days (days in previous 30 days)[6]	2006 4.6 2011 4.5	3.5	50	South Dakota (2.3)	NA
Poor physical health days (days in previous 30 days)[6]	2006 5.2 2011 4.9	2.7	50	Minnesota (2.6)	NA
Cancer deaths (per 100,000 population)[6]	2008 219.8 2011 220	190.8	49	Utah (137.4)	Kentucky (225.1)
Cardiac heart disease (percent of adult population)[6]	2008 7.6% 2011 6%	4.1%	49	Hawaii (2.3%)	Arizona (6.8%)
Cardiovascular deaths (per 100,000 population)[6]	2008 353.5 2011 321.2	270.4	47	Minnesota (197.2)	Mississippi (366.4)
Heart attack (percent of adult population)[6]	2006 7% 2011 6.3%	4.2%	49	Alaska (2.6%)	Arizona (6.7%)

Key Indicators at a Glance

Key Indicators	WV Trend*	US	WV Rank	Other State Ranks	
				#1	#50
High blood pressure (percent of adult population)[6]	2000 31% 2011 37.6%	28.6%	50	Minnesota (21.5%)	NA
High cholesterol (percent of adult population)[6]	2000 NA 2011 38.4%	37.5%	29	Tennessee (32.9%)	South Carolina (41.8%)
Stroke (percent of adult population)[6]	2006 3.4% 2011 3.5%	2.7%	40	Colorado (1.7%)	Alabama (4.7%)
Ever told had diabetes (percent of adults)[10]	2000 7.6% 2010 11.7%	9%	48	Alaska (5.3%)	Alabama (13.2%)
Current asthma (percent of adults)[7, 9]	2000 8.5% 2010 7.3%	8.6%	4	Tennessee (6%)	Vermont (11.1%)
Mammogram in past 2 years (percent of women 50 or older)[10]	2002 75.6% 2010 75.7%	77%	33	Massachusetts (87.8%)	Idaho (67.3%)
Ever had colonoscopy or sigmoidoscopy (percent of adults 50 or older)[10]	2002 40.3% 2010 54.1%	65%	50	Connecticut (75.4%)	NA
Access to Care					
Public health funding (dollars per person)[6]	2005 $95 2011 $144	$96	4	Hawaii ($244)	Wisconsin ($40)
No health insurance (percent of population)[6]	2000 17.2% 2011 13.6%	16.2%	21	Massachusetts (5%)	Texas (25%)
Could not afford to see a doctor in last 12 months (percent 18 and older)[7, 10]	2000 16.4% 2010 17.7%	13 %	46	North Dakota (6.5%)	Mississippi (20.8%)

Key Indicators at a Glance

Key Indicators	WV Trend*		US	WV Rank	Other State Ranks	
					#1	#50
Primary care physicians (number per 100,000 population)[6]	2005 / 2011	103.8 / 107.2	121	32	Massachusetts (191.9)	Idaho (77.7)
Dental visit in past year (percent of adults)[6]	2000 / 2011	57.8% / 60.5%	70.1%	48	Massachusetts (81.7%)	Oklahoma (57.2%)
Flu shot in past year (percent adults age 65 or older)[10]	2002 / 2010	65.8% / 66.4%	68%	35	Colorado (73.4%)	Nevada (59.3%)
Immunization Coverage (percent of children ages 19 to 35 months)[6]	2000 / 2011	86.6% / 91%	90.25%	23	Connecticut (96%)	Montana (83.3%)

*If an indicator did not improve between the two comparison years, and/or the WV rank was in the bottom five in the United States (46th - 50th), it was marked red.

^Data not available for all 50 states; rankings based on available data.

Note: Rankings in "At-A-Glance were determined by listing the value for each (participating) state indicator in order. The state with the "healthiest" value was ranked 1. Rankings do not take into account sampling error or other sources of statistical variation.

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Demographics

Geography & Population

West Virginia's population is increasing and growing older, a combination that holds important implications for healthcare and public health infrastructure. The entire population increased to 1,855,364 as of July 2011 [1], a 3 percent increase from 2000 [2]. The population increase varied by county, however, with counties such as Berkeley seeing a steady population growth (78 percent from 1990 to 2011 due to its proximity to Washington, D.C.), and other counties such as McDowell experiencing a population decrease (31 percent from 1990 to 2011). Table 1 provides population change data from 1990 to 2011 for each county in West Virginia [3, 4].

The largest cities in West Virginia are Charleston (population 51,177), Huntington (population 49,253) and Parkersburg (population 31,557).

Rural West Virginia

The majority of West Virginia's population remains rural with a population density of less than 100 persons per square mile (see Figure 1) and an average of 77.1 persons per square mile throughout the state's 24,038 square miles [1]. Rural residents of West Virginia face unique challenges to health and wellness, such as greater distances between people and resources, lack of access to healthcare facilities and infrastructures that support healthy behaviors.

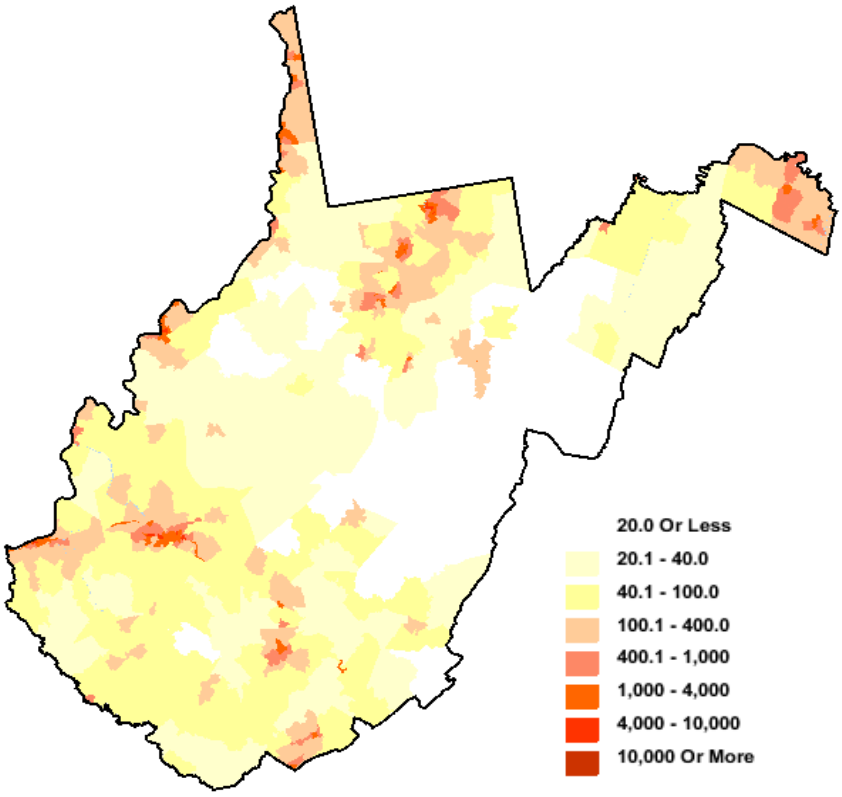

Figure 1. Population density per square mile
Source: U.S. Census 2010 data, Communitycommons.org

Aging Population

West Virginia's population is among the oldest in the country and the median age of West Virginia residents is rising, increasing from 38.9 in 2000 [2] to 41.3 in 2010 [5]. According to the 2010 U.S. Census, West Virginia was one of only seven states with a median age above 40 and was surpassed only by

Demographics

Maine and Vermont with median ages of 42.7 and 41.5, respectively [5]. Such an aging population requires greater emphasis on providing services and resources for elderly residents.

Age Distribution

West Virginia's population is changing (Figure 2). From 2000 to 2010 the state's percentage of youth aged 0 to 14 decreased by four percent, while the population ages 35 to 44 fell 13 percent [2, 5]. At the same time, the population ages 45 and

Geographic Area	1990 Census	July 1, 2011 Estimate	Percent Change	Geographic Area	1990 Census	July 1, 2011 Estimate	Percent Change
West Virginia	1,793,477	1,855,364	3%	Mercer	64,980	62,465	-4%
Barbour	15,699	16,520	5%	Mineral	26,697	28,192	6%
Berkeley	59,253	105,750	78%	Mingo	33,739	26,563	-21%
Boone	25,870	24,444	-6%	Monongalia	75,509	98,528	30%
Braxton	12,998	14,485	11%	Monroe	12,406	13,534	9%
Brooke	26,992	23,844	-12%	Morgan	12,128	17,535	45%
Cabell	96,827	96,653	0%	Nicholas	26,775	26,268	-2%
Calhoun	7,885	7,652	-3%	Ohio	50,871	44,246	-13%
Clay	9,983	9,357	-6%	Pendleton	8,054	7,673	-5%
Doddridge	6,994	8,171	17%	Pleasants	7,546	7,611	1%
Fayette	47,952	45,699	-5%	Pocahontas	9,008	8,786	-2%
Gilmer	7,669	8,705	14%	Preston	29,037	33,723	16%
Grant	10,428	11,891	14%	Putnam	42,835	56,008	31%
Greenbrier	34,693	35,800	3%	Raleigh	76,819	79,127	3%
Hampshire	16,498	23,812	44%	Randolph	27,803	29,465	6%
Hancock	35,233	30,571	-13%	Ritchie	10,233	10,295	1%
Hardy	10,977	13,912	27%	Roane	15,120	14,858	-2%
Harrison	69,371	69,436	0%	Summers	14,204	13,867	-2%
Jackson	25,938	29,241	13%	Taylor	15,144	16,916	12%
Jefferson	35,926	54,225	51%	Tucker	7,728	7,021	-9%
Kanawha	20,7619	192,315	-7%	Tyler	9,796	9,121	-7%
Lewis	17,223	16,416	-5%	Upshur	22,867	24,322	6%
Lincoln	21,382	21,550	1%	Wayne	41,636	42,126	1%
Logan	43,032	36,457	-15%	Webster	10,729	9,143	-15%
McDowell	35,233	21,729	-38%	Wetzel	19,258	16,351	-15%
Marion	57,249	56,586	-1%	Wirt	5,192	5,762	11%
Marshall	37,356	32,800	-12%	Wood	86,915	87,025	0%
Mason	25,178	27,298	8%	Wyoming	28,990	23,738	-18%

Table 1. West Virginia population by county
Source: U.S. Census data, 1990 and 2011

Demographics

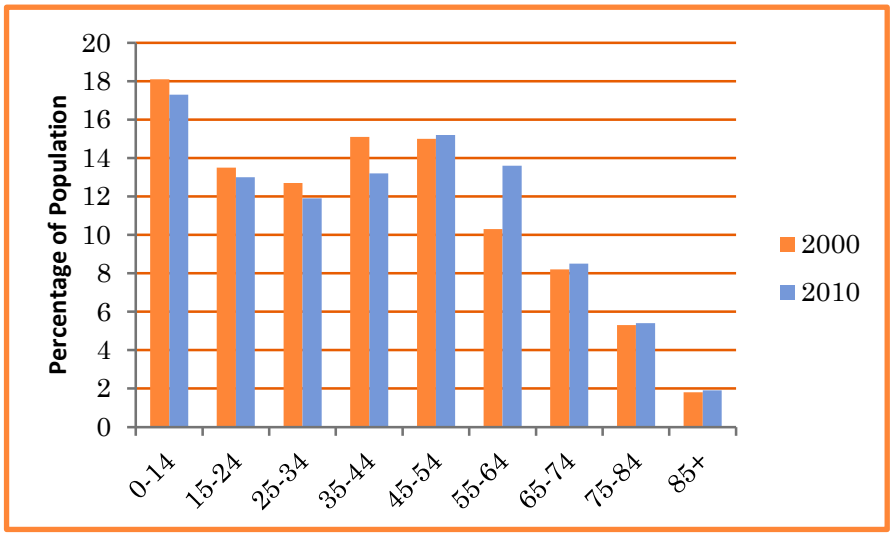

Figure 2. Age distribution of West Virginia population
Source: U.S. Census data, 2000 and 2010

older has risen, with the most dramatic increase in the 55-64 age group (32 percent).

Race/Ethnicity

West Virginia's population has become slightly more diverse; as illustrated in Table 2, 95.3 percent of the population is white, a slight decrease from 95.9 percent in 2000. The black or African American population, however, has increased by 20 percent and now makes up 4.2 percent of the state's population. The state's Hispanic or Latino population has also experienced substantial growth since 2000, increasing by 71 percent to make up 1.2 percent of the population.

In 2011, 1.3 percent of the population was foreign born, and 2.3 percent of the population did not speak English at home [1]. This diversity brings new challenges for public health, including language barrier issues. As more residents are non-native English speakers, it becomes necessary to have materials and staff to communicate in languages other than English.

Race alone or in combination with one or more races*	2000		2010	
	Population	Percentage	Population	Percentage
White	1,733,390	95.9	1,765,642	95.3
Black or African American	62,817	3.5	76,945	4.2
American Indian and Alaska Native	10,644	0.6	13,314	0.7
Asian	11,873	0.7	16,465	0.9
Native Hawaiian and Other Pacific Islander	887	0.0	1,254	0.1
Other Race	5,579	0.3	8,164	0.4
Hispanic Origin				
Hispanic or Latino	12,279	0.7	22,268	1.2
Not Hispanic or Latino	1,796,065	99.3	1,830,726	98.8

Table 2. West Virginia Population by Race/Ethnicity Source: U.S. Census data, 2000 and 2010
*The six numbers may add to more than the total population, and the six percentages may add to more than 100 percent because individuals may report more than one race.

Demographics

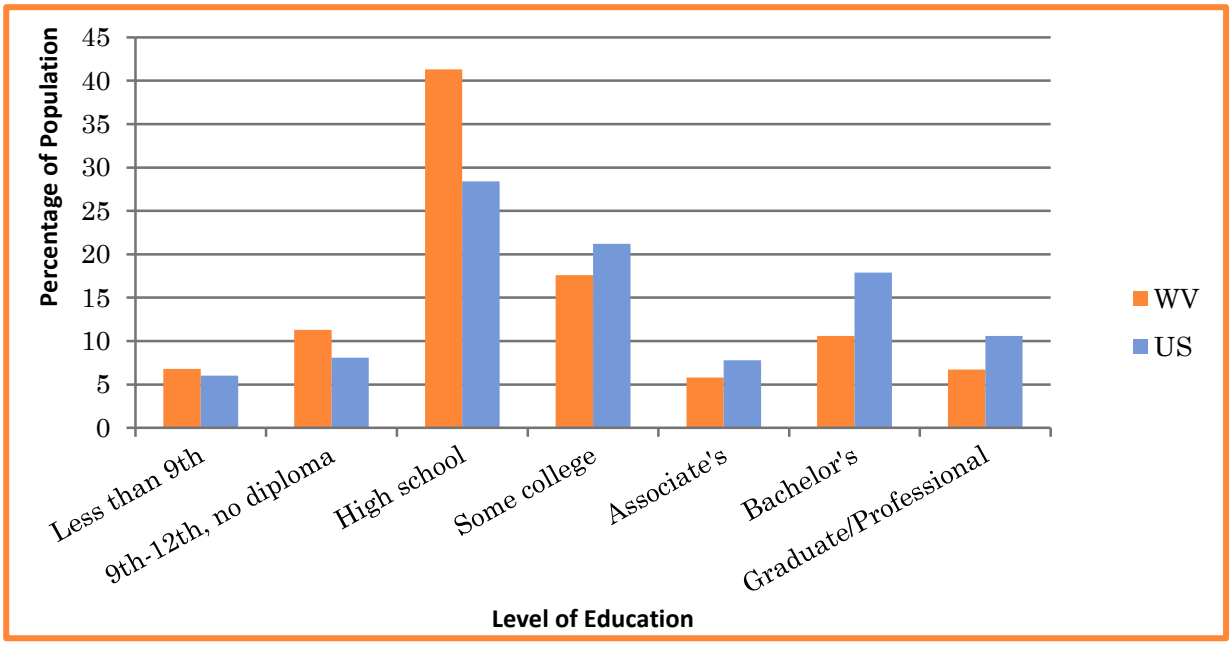

Figure 3. Highest level of education attained by West Virginia population
Source: U.S. Census data, 2010

Education

Education is an important factor for gauging health behaviors, as persons with less education are more likely to smoke and to be diagnosed with a chronic condition such as diabetes. Adults who attained education beyond a high school degree were much less likely to be smokers [6].

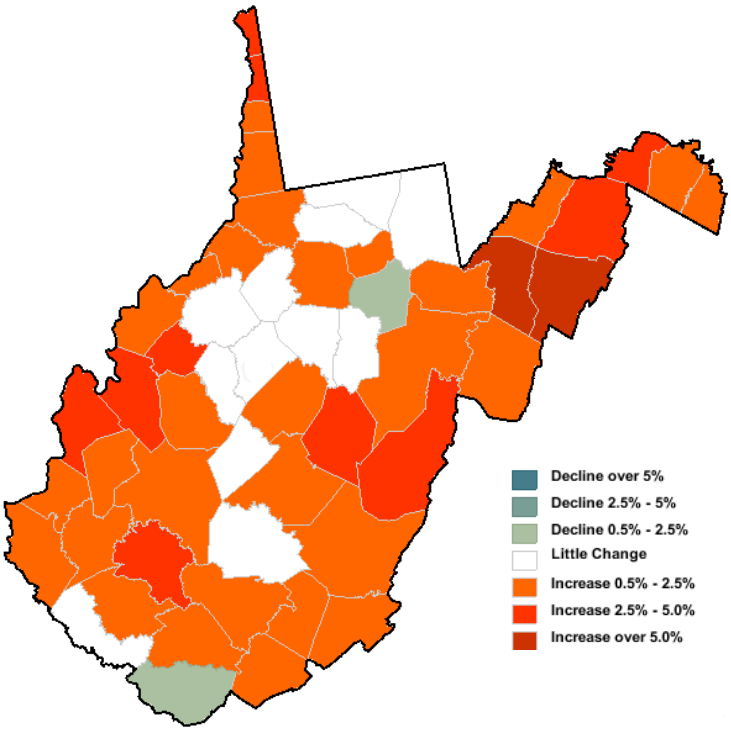

Figure 4. Unemployment change from 2000 to 2010
Source: U.S. Census data, Communitycommons.org

West Virginia's population has a large disparity in level of education. As shown in Figure 3, the highest education level achieved by the majority of the population is a high school diploma (41.3 percent). Compared to this, a significantly small percentage of the population has completed either an associate's degree (5.8 percent) or a

bachelor's degree (10.6 percent). These numbers are especially low when compared to the United States population, of which 28.4 percent have

County	Percentage in Poverty		Median Household Income 2010	County	Median Household Income 2010	Percentage in Poverty	
	2000	2010				2000	2010
Barbour	19.4	18.2	$31,634	Mineral	$38,279	13.8	16.7
Berkeley	10.4	127	$50,923	Mingo	$31,915	24.4	23.7
Boone	18.4	18.9	$38,126	Monongalia	$42,247	14.2	22.2
Braxton	20.4	23.6	$32.606	Monroe	$34,637	16.3	17.9
Brooke	10.4	14.7	$38,197	Morgan	$40,636	10.8	13.5
Cabell	15.4	23.3	$36,274	Nicholas	$35,945	18.7	18.6
Calhoun	21.2	24.2	$29,084	Ohio	$38,997	13.2	16.6
Clay	24.2	26	$31,232	Pendleton	$36,997	12.2	15.3
Doddridge	16.6	20.6	$34,444	Pleasants	$40,416	12	15.1
Fayette	20.6	22.6	$30,856	Pocahontas	$31,289	16.5	19.9
Gilmer	22.2	29.1	$31,558	Preston	$42,529	15.2	15.8
Grant	13.3	17.6	$36,487	Putnam	$52,942	8.6	10.4
Greenbrier	15.9	20.8	$35,456	Raleigh	$37,915	17.2	18
Hampshire	13.8	18.4	$33,991	Randolph	$35,176	16.7	18.7
Hancock	9.7	13.6	$38,501	Ritchie	$35,170	16.3	19.9
Hardy	12.1	16.3	$37,002	Roane	$31,362	19.5	23.2
Harrison	15.3	17.3	$40,441	Summers	$29,261	22.3	23
Jackson	14.1	20.2	$38,600	Taylor	$36,846	17.8	20.3
Jefferson	8.8	11.1	$63,156	Tucker	$33,915	14.3	19.2
Kanawha	13	14.8	$43,110	Tyler	$36,122	15	16.2
Lewis	17.2	19.2	$34,734	Upshur	$35,893	18.9	21.9
Lincoln	22.2	24.2	$34,119	Wayne	$36,360	16.9	20.2
Logan	21.8	22.3	$33,202	Webster	$29,083	26.7	26.5
McDowell	32.1	33.6	$24,133	Wetzel	$36,390	15.9	18.3
Marion	14.4	16.8	$38,856	Wirt	$36,037	17.6	22.1
Marshall	13.4	17	$37,206	Wood	$39,456	13.2	15.5
Mason	16.3	18.4	$36,279	Wyoming	$35,872	22.2	20
Mercer	17.8	21.6	$32,366				

Table 3. West Virginia percent in poverty by county Source: U.S. Census data, 2000 and 2010

Demographics

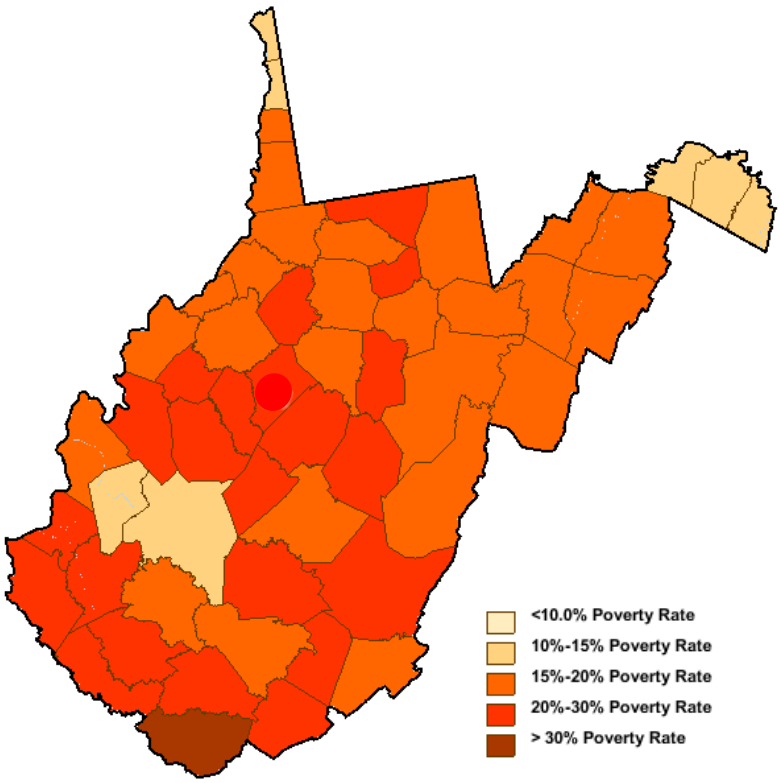

Figure 5. Percent living in poverty
Source: SAIP Poverty Estimates, 2010, Communitycommons.org

earned a high school diploma; 7.8 percent and 17.9 percent have an associate's degree and a bachelor's degree respectively.

Income

Income is another factor that directly relates to the health of West Virginia residents, as persons with lower income often have less access to necessary healthcare. In addition, persons with lower income are more likely to engage in negative health behaviors. For example, the highest smoking prevalence in West Virginia is among those earning less than $15,000 per year, while the lowest prevalence is among those earning $75,000 or more per year. [6]

During 2006-2010, the median household income for West Virginia's 740,874 households was $38,380 and the per capita income was $21,232. The percentage of the population living below the poverty line was 17.4 percent [1].

Disability

In 2011, 18.9 percent of West Virginia's population reported some type of disability, compared to 12.1 percent of the United States population. Among West Virginia's population aged 18-64, 17.3 percent reported a disability, while 43.5 percent of the population over 65 reported some type of disability. Nationally, 10.2 percent of the population aged 18-64 reported a disability, and

Subject	West Virginia		
	Total	With a disability	Percent with a disability
Total civilian noninstitutionalized population	1,826,485	345,931	18.90%
Under 5 years	103,978	941	0.90%
5 to 17 years	281,324	19,086	6.80%
18 to 64 years	1,148,554	198,721	17.30%
65 years and over	292,629	127,183	43.50%

Table 4. West Virginia residents with disabilities by age
Source: American Community Survey, 2011

Demographics

West Virginia Population with a Disability	Percentage	Total
Total:	100%	1,148,554
In the labor force:	67%	774,380
Employed:	61%	705,626
With a disability	4%	48,218
With a hearing difficulty	1%	15,745
With a vision difficulty	0%	5,611
With a cognitive difficulty	1%	11,370
With an ambulatory difficulty	2%	21,333
With a self-care difficulty	0.003%	3,594
With an independent living difficulty	1%	7,140
No disability	57%	657,408
Unemployed:	6%	68,754
With a disability	1%	8,841
With a hearing difficulty	0.002%	2,279
With a vision difficulty	0.002%	1,923
With a cognitive difficulty	0.004%	4,475
With an ambulatory difficulty	0.002%	2,712
With a self-care difficulty	0.0005%	546
With an independent living difficulty	0.002%	2,507
No disability	5%	59,913
Not in labor force:	33%	374,174
With a disability	12%	141,662
With a hearing difficulty	2%	26,870
With a vision difficulty	2%	27,109
With a cognitive difficulty	6%	66,440
With an ambulatory difficulty	8%	93,368
With a self-care difficulty	3%	30,899
With an independent living difficulty	6%	64,239
No disability	20%	232,512

Table 5. West Virginia residents with disabilities by employment status
Source: American Community Survey, 2011

that number increased to 36.6 percent for the population over 65.

Individuals with disabilities make up 12 percent of West Virginia's population that is unemployed and not actively seeking a job (compared to 6 percent nationally). An additional one percent of those temporarily unemployed reported a disability (similar to the national rate of 1 percent) and 4 percent of the working population reported some type of disability (compared to 3 percent nationally) [7].

These percentages of individuals with disabilities bring additional challenges for healthcare. Those with disabilities are more likely to have poor health overall, to be physically inactive and to smoke [8]. They may also have less access to healthcare or health insurance and may not be able to afford the care they need.

In addition, those with disabilities may suffer from multiple secondary conditions that decrease

Demographics

Health Risk Factors (percent of population)	Non-Hispanic White	Non-Hispanic Black	Hispanic
Diagnosed high blood pressure (2007-2009)	32.4	44.7	33.7
Obesity age 20 & over (2008-2010)	32.7	46.3	29.6
No leisure-time physical activity (2008-2010)	31.6	36.4	31
Smoking currently (2008-2010)	27.4	28.8	26.5
Eats 5+ fruits and vegetables a day (2007-2009)	17.3	18.5	21.8
Preventive Care (percent of population)			
Cholesterol screening in past 5 yrs. (2007-2009)	76.7	74	77.5
Routine check-up in past 2 yrs. (2008-2010)	83	94.7	86.6
Dental visit within the past year (2008-2010)	60	62.5	52.7
Health Insurance Coverage (percent of population)			
Health insurance coverage ages 18-64 (2008-2010)	78.9	78.5	80.8

Table 6. West Virginia health disparities profile
Source: U.S. Department of Health and Human Services, 2011

their quality of life and require additional medical treatment [8].

Health Disparities

West Virginia has one of the highest death rates in the United States and consistently ranks among the bottom tier of states in all major causes of death except for deaths due to influenza and pneumonia [9].

Additionally, West Virginia's population also ranks among the bottom tier of states in health risk factor categories such as the state's obesity rate, which exceeds 30 percent and is among the highest in the nation. These numbers are even higher among West Virginia's minority population, as the state's black population has significantly higher rates of obesity (39.5 percent compared to 32.1 percent among whites and 29.7 percent among Hispanics in 2011) and high blood pressure (44.7 percent compared to 32.4 percent of whites and 33.7 percent of Hispanics in 2009). [9,10].

Additionally, diabetes rates also vary by race and ethnicity, as 15.2 percent of the non-Hispanic black population is diabetic, compared to 11.8 percent of the white population and 11.7 percent of the Hispanic population [10].

Disparities exist in other chronic disease rates as well, including cardiovascular disease (5.9 percent of the white population reported having had a heart attack, compared to 7.2 percent of the black population) [11].

Leading Causes of Death

West Virginia's rates for all leading causes of death are significantly higher than those of the United States as a whole (Figure 6). The leading cause of death is heart

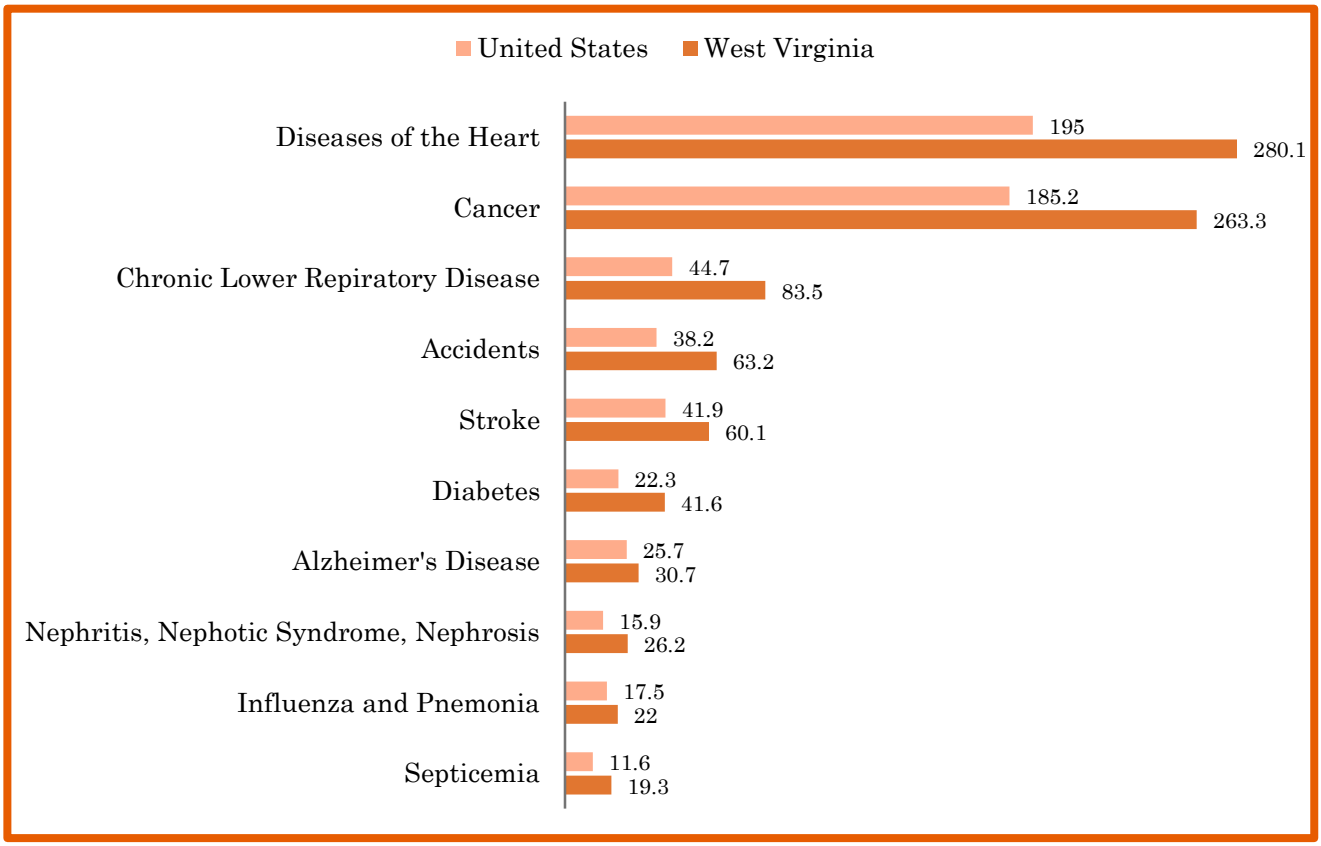

Figure 6. West Virginia leading causes of death (rate per 100,000 population)
Source: West Virginia Bureau for Public Health, Health Statistics Center (2012) WV Vital Statistics, 2009

disease, followed closely by cancer. Each of these claim more than 250 out of every 100,000 lives in West Virginia, compared to the national rates, which are both under 200 per 100,000. The next highest causes of death in West Virginia are chronic lower respiratory disease, accidents and stroke, with rates of 60 to 84 residents per 100,000 [12].

Life Expectancy & Years of Life Lost

Years of potential life lost (YPLL) is an estimate of the average years a person would have lived if he or she had not died prematurely. In the West Virginia Vital Statistics, 2009, YPLL was calculated as the difference between age 75 (an average life span) and the age at death [12]. Calculating years of potential life lost highlights causes of mortality during childhood and can be used to identify important causes of premature death. This calculation gives more weight to deaths occurring among younger people.

The four greatest causes of potential life lost in both West Virginia and the United States are cancer, heart disease, unintentional injury and suicide. West Virginia's percentage of YPLL for chronic lower respiratory disease and diabetes are well above the national rates (4 percent and 3.2 percent compared to 2.7

Demographics

Cause of Death	Years of Potential Life Lost Before Age 75 West Virginia 2009		Years of Potential Life Lost Before Age 75 United States 2009		West Virginia Actual Deaths 2009	
	Number	Percent	Number	Percent	Number	Percent
All causes	174,632	100%	20,261,405	100%	21,385	100%
Cancer	37,441	21.4%	4,397,332	21.7%	4,792	22.4%
Heart disease	24,859	14.2%	3,038,728	15%	5,097	23.8%
Unintentional injury	34,238	19.6%	2,928,868	14.5%	1284	6%
Suicide	8,286	4.7%	1,063,300	5.2%	288	1.3%
Chronic lower respiratory diseases	6,987	4%	543,247	2.7%	1,519	7.1%
Diabetes	5,659	3.2%	494,484	2.4%	757	3.5%
Stroke	4,238	2.4%	518,952	2.6%	1,093	5.1%
Infectious and parasitic diseases	3,773	2.2%	NA	NA	553	2.6%
Chronic liver disease and cirrhosis	3,733	2.1%	NA	NA	246	1.2%
Congenital malformations	3,549	2%	548,362	2.7%	66	0.3%
Homicide	3,445	2%	702,725	3.5%	99	0.5%
Sudden infant death syndrome	2,384	1.4%	NA	NA	32	0.1%
Nephritis, Nephrotic Syndrome, Nephrosis	2,328	1.3%	NA	NA	476	2.2%
Disorders relating to short gestation and low birthweight	2,161	1.2%	NA	NA	29	0.1%
Influenza and pneumonia	2,116	1.2%	NA	NA	401	1.9%
Obesity	1,272	0.7%	NA	NA	62	0.3%
Alcohol or drug psychoses, dependence or abuse	1,256	0.7%	NA	NA	57	0.3%
Other newborn respiratory conditions	1,043	0.6%	NA	NA	57	0.3%
All other causes (residual)	25,868	14.8%	5,043,144	24.9%	4,520	21.1%

Table 7. West Virginia, U.S. years of potential life lost, 2009
Source: West Virginia Bureau for Public Health, Health Statistics Center, 2012
Centers for Disease Control & Prevention, WISQARS Years of Potential Life Lost Report 1999-2010

percent and 2.4 percent respectively).

West Virginia is slightly below the national numbers in YPLL for stroke (2.4 percent), congenital malformations (2 percent) and homicide (2 percent), compared to the national YPLL (2.6 percent, 2.7 percent and 3.5 percent respectively) [12, 13].

YPLL draws attention to areas where West Virginia's public health system can be improved to help residents live longer, healthier lives.

Demographics

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Health Behaviors

Smoking & Tobacco Use

Tobacco use is the single largest preventable cause of death in the United States [1]. In West Virginia, an average of 3,785 residents die each year from diseases related to smoking and about 19 percent of all deaths (nearly 1 in 5) are caused by cigarette smoking. West Virginia has one of the highest smoking-attributable mortality rates in the nation. In 2006, the percentage of deaths attributed to smoking ranged from nearly 23 percent in Lincoln County to 14 percent in Pendleton County [2].

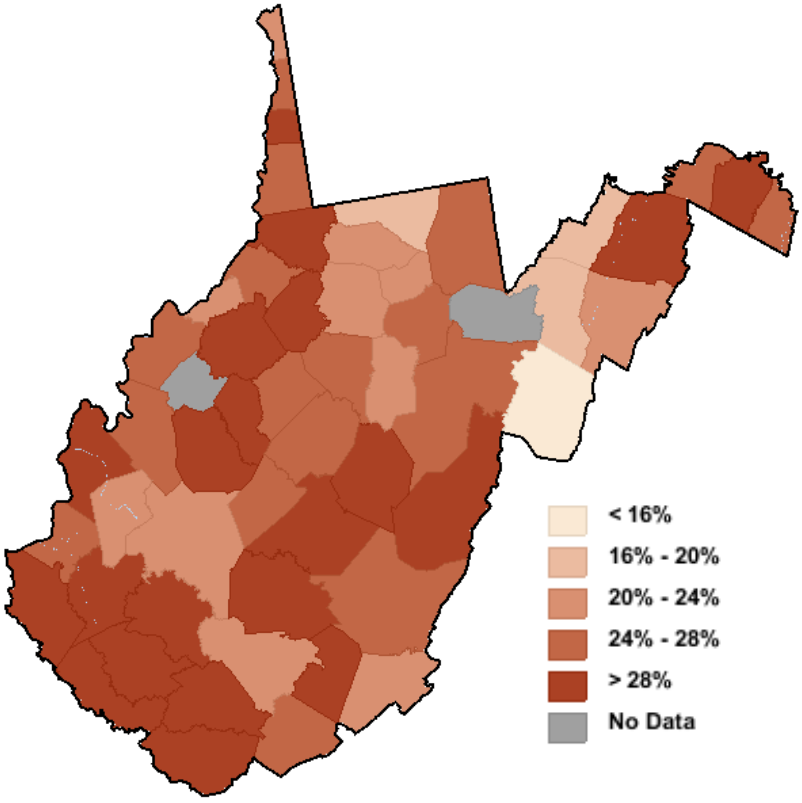

Figure 7. Percentage of adults currently smoking
Source: CDC, BRFSS, 2004-2010, Communitycommons.org

Seventeen percent of the United States population smokes currently (has had at least 100 cigarettes in one's lifetime and currently smokes every day or some days) [3]. West Virginia, however, has a much higher prevalence of smoking, as 26.8 percent of the state's population currently smokes [3]. This percentage ranks second highest among the 54 states and territories that participate in the Behavioral Risk Factor Surveillance System (BRFSS) [3].

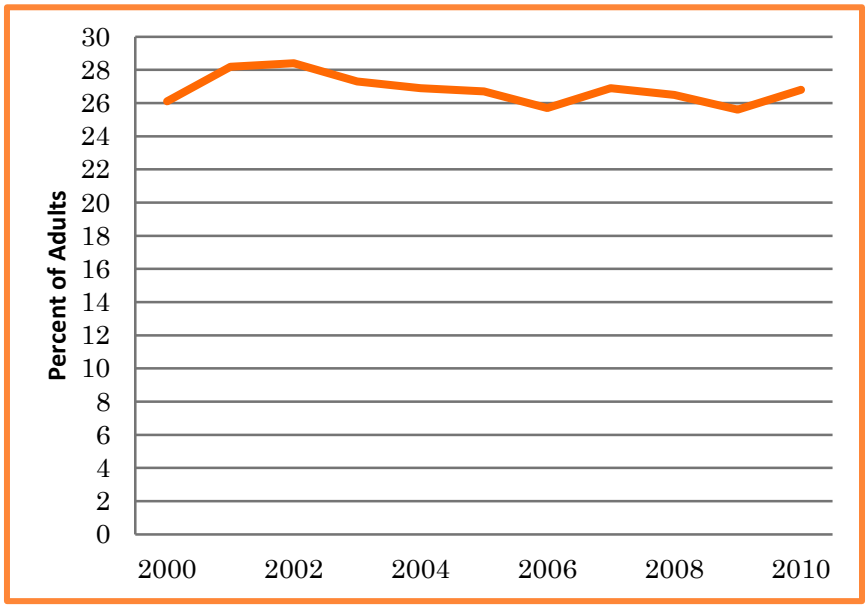

Figure 8. West Virginia percentage of adults who smoke, 2000-2010
Source: West Virginia BRFSS Report, 2009-2010

Health Behaviors

	Number	Alcohol	Marijuana	Cocaine	Heroin	Other Opiates	Other Substances
2003	4,104	52.5	16.1	7.2	2.6	11.6	26.1
2004	4,277	49.1	16.2	8.7	3.3	12.8	26.1
2005	5,202	46.4	13.9	8.6	3.8	15.9	25.3
2006	6,002	49.7	12.6	9	2.5	14.8	24
2007	6,052	47.5	13.7	6.8	2.1	20	23.6
2008	6,935	49.2	13.3	5.1	2.4	25	18.3

Table 8. West Virginia percent of treatment episodes attributable to select primary substances, 2003-2008
Source: West Virginia Prevention Resource Center, 2010

Since 1986, the smoking prevalence in West Virginia has not changed significantly [3]. The 2010 smoking prevalence was significantly lower in the 65 and older age group, while it was the highest among those aged 25 to 34. Education and income also affected smoking rates, as the prevalence of smoking was higher among those with less than a high school diploma as well as those who earned less than $15,000 per year. Smoking prevalence was lower in the population earning above $75,000 per year and among those who attained a college degree [3].

Five counties in West Virginia reported a percentage of smokers significantly higher than the state average: Logan, Mason, McDowell, Mingo and Wayne. Three counties reported a significantly lower prevalence of smoking: Grant, Mineral, and Putnam [3].

Substance Abuse

According to a report from the 2011 West Virginia Summit on Prescription Drug Abuse, West Virginia has the nation's highest per capita rate of deaths due to overdose. Of those deaths, 9 out of 10 are the direct or indirect result of prescription drug use [4]. Overall, West Virginia's death rate due to substance abuse grew by more than 560 percent from 1999 to 2007. During that time, 2,580 West Virginia residents died, with a death rate of 26.27 per 100,000 population by

		12 and Older	12-17	18-25	26 and Older
Illicit drug use in past month	**WV**	7.37	9.38	19.84	5.29
	US	8.14	9.66	19.77	5.92
Marijuana use in past year	**WV**	8.82	12.88	26.04	5.81
	US	10.22	12.83	27.73	6.83
Marijuana use in past month	**WV**	5.26	6.41	15.9	3.54
	US	5.92	6.67	16.34	4.02
Illicit drug use (other than marijuana) in past month	**WV**	4.16	5.04	10.87	3.07
	US	3.82	4.8	8.47	2.89
Cocaine use in past year	**WV**	2.35	1.61	8.13	1.57
	US	2.39	1.57	6.63	1.77
Nonmedical use of pain relievers in past year	**WV**	5.14	7.19	15.09	3.44
	US	5.09	6.91	12.28	3.59

Table 9. West Virginia estimated percentage of past month and past year use of select illicit drugs by age
Source: West Virginia Prevention Resource Center, 2006-2007 National Survey on Drug Use and Health.

2007. County rates of drug-related deaths varied significantly, with 18 counties exceeding the overall state rate. Counties with the highest rates of death were McDowell (61.7 per 100,000 population), Wyoming (59.95), Logan (50.78), Boone (40.66), Mingo (39.72) and Summers (38.12) [5].

Substance abuse treatment admissions and discharges from 2003 to 2008 indicate that hospital admissions involving marijuana, cocaine, heroin or other illegal drugs decreased or remained unchanged, while admissions involving non-medical use of prescription drugs more than doubled. In 2009 West Virginians reported rates of illegal drug consumption slightly higher than national rates, especially by those in the 12-17 and 18-25 age groups [5].

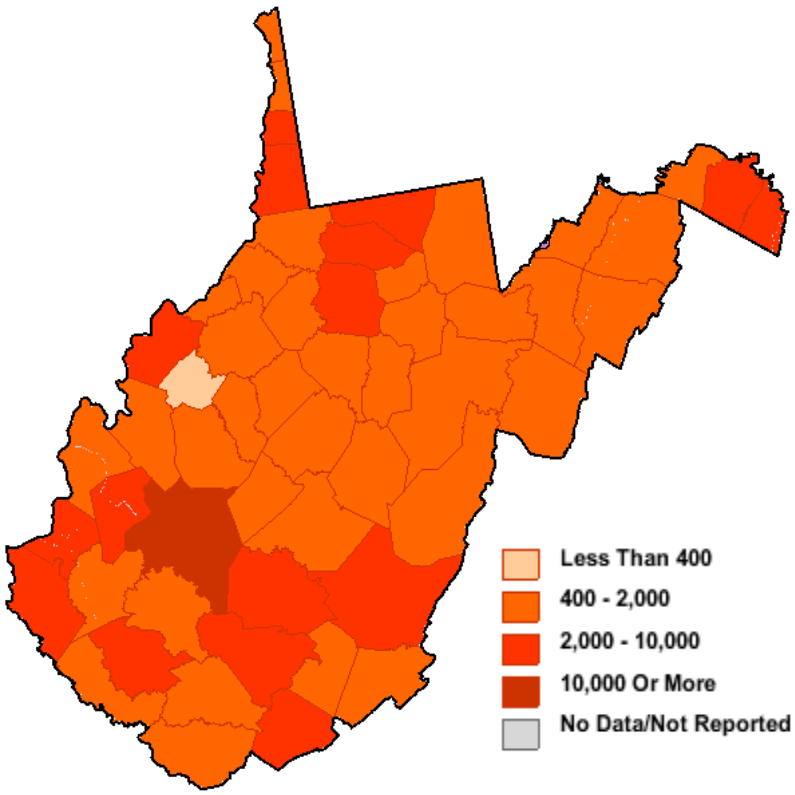

Figure 9. Population over age 12 using illicit drugs in past 12 months
Source: Community Health Status Indicators 2009

Several programs have been put in place to counteract the misuse and abuse of prescription drugs, but it remains a major concern for West Virginia's healthcare system [4].

Description	Number of Deaths	Percent
Alcoholic cirrhosis of liver	304	42.2%
Alcoholic hepatic failure	82	11.4%
Harmful use	79	11%
Dependence syndrome	64	8.9%
Alcoholic liver disease, unspecified	46	6.4%
Acute intoxication	38	5.3%
Alcoholic hepatitis	28	3.9%
Alcoholic cardiomyopathy	20	2.8%
Alcoholic-induced chronic pancreatitis	15	2.1%
All other alcohol related causes	44	6.1%

Table 10. West Virginia alcohol-related causes of death, 2003-2007
Source: West Virginia Prevention Resource Center

Alcohol Consumption

West Virginian's alcohol consumption remains among the lowest in the United States. The state ranked third lowest in binge drinking prevalence in both 2009 and 2010 with rates of 9.2 percent and 9 percent

Health Behaviors

		12 +	12-17	18-25	26 +
Alcohol dependence (%)	West Virginia	2.99	1.86	8.36	2.32
	United States	3.41	2.03	7.44	2.90
Needing but not receiving treatment (%)	West Virginia	5.93	4.44	15.49	4.68
	United States	7.23	5.18	16.68	5.87

Table 11. West Virginia alcohol dependence and needing but not receiving treatment for alcohol use in past year
Source: West Virginia Prevention Resource Center, 2006-2007 National Survey on Drug Use and Health.

respectively (compared to the United States prevalence rate of 15.1 percent in 2008). In addition, West Virginia's rate of heavy drinking prevalence was 2.7 percent in 2009 and 2.8 percent in 2010, ranking second lowest in the nation both years [3].

Overall, the state's younger population had higher binge drinking rates than those ages 55 and older, with a prevalence of 16-18 percent among those aged 18-24 compared to the lowest prevalence of 1-2 percent in those aged 65 or older. The 65 and older age group also reported the lowest prevalence of heavy drinking (consumption of more than two drinks per day for men or one drink per day for women during the past month) [3].

However, these low prevalence numbers do not mean that alcohol consumption is not a health concern in West Virginia. According to the West Virginia Prevention Resource Center, 1,262 people died in the state due to alcohol-related causes between 1999 and 2007. Along with this, the number of alcohol-related deaths has continued to rise since 2004. Annually, just less than 8 West Virginians per 100,000 die from an alcohol-related cause, but that number is higher in 22 of the state's counties, with the highest being 17.3 (McDowell), 15 (Fayette) and 14.1 (Barbour).

Furthermore, West Virginia averages 8 fatal motor vehicle crashes annually due to alcohol per 100,000 population [3].

Along with those who lost their lives as a result of consuming alcohol, 7,000 state residents received treatment for substance abuse related to alcohol in 2008. In addition to those who received treatment, 46,000 West Virginians ages 12 and older are dependent on alcohol and as many as 91,000 residents need, but may not receive, treatment for alcohol abuse [5].

Fruit & Vegetable Intake

West Virginia's residents are not eating the

		2000	2009
Percent of adults who consumed fruit 2 or more times per day	West Virginia	30	25.3
	United States	34.4	32.5
Percent of adults who consumed vegetables 3 or more times per day	West Virginia	29.9	22.1
	United States	26.7	26.3

Table 12. West Virginia and U.S. fruit and vegetable consumption
Source: CDC BRFSS 2010

Health Behaviors

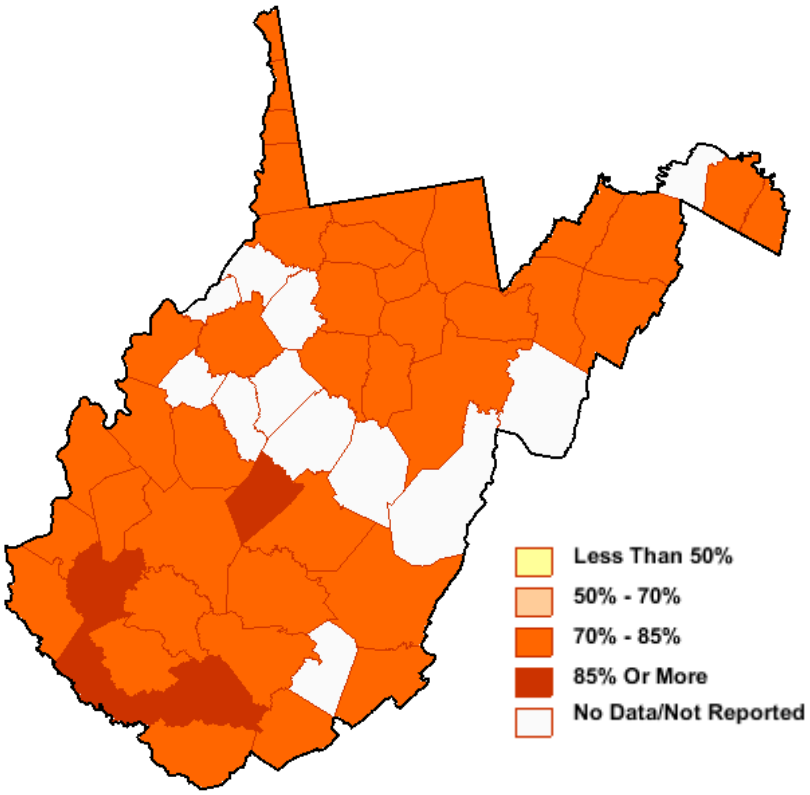

Figure 10. Percent adults reporting few fruits and vegetables consumed
Source: Community Health Status Indicators 2009

recommended amount of fruits and vegetables on a daily basis. In fact, 84 percent, or 8 out of 10 adults consume fewer than five servings of fruit or vegetables per day, ranking West Virginia third from the bottom in the nation for this health indicator in 2009 [3].

Men overall consumed fewer fruits and vegetables than women (86.7 percent to 81.2 percent respectively) [3].

Additional factors affecting fruit and vegetable consumption include education and income. According to West Virginia BRFSS, the consumption of more fruits and vegetables was significantly higher among college graduates than residents with only a high school diploma. Likewise, the state's poorest households (less than $15,000 in annual income) reported consuming significantly fewer fruits and vegetables than those in the state's wealthiest households ($75,000 or more in annual income) [3].

Not only are West Virginians not eating enough fruits and vegetables, the amount they are eating has actually declined since 2000. West Virginia rates decreased from 30 percent of adults reporting consumption of fruit two or more times per day and 26.7 percent eating vegetables three or more times per day in 2000 to 25.3 percent eating fruit and 22.1 percent eating vegetables in 2009 [6]. This decline signals a concern, as consuming an adequate amount of fruits and vegetables can help reduce the risk for many leading causes of death and can help with weight management, both important factors in the health of West Virginians.

Obesity & Overweight

West Virginia's population has one of the highest rates of adult obesity (BMI of 30 or above) in the United

Health Behaviors

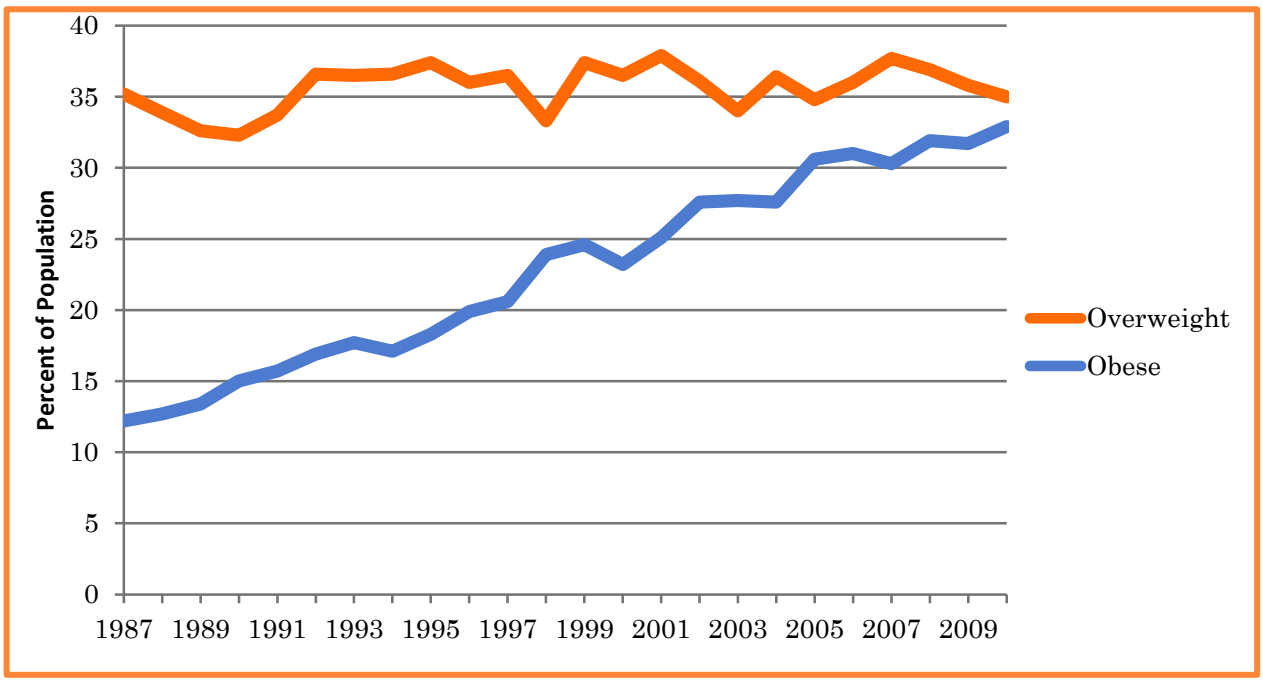

Figure 11. Percent of obesity and overweight prevalence in West Virginia from 1987 to 2010
Source: West Virginia Health Statistics Center (2012) 2009-2010 WV Behavioral Risk Factor Survey Report

States, as 32.9 percent of the population was obese in 2010, compared to 27.8 percent of the U.S. population [3]. In 2011, West Virginians' self-reported rate of obesity was 32.4 percent [7]. Among the 54 states and territories that participated in the BRFSS in 2010, West Virginia reported the third highest percentage of obesity [3]. Obesity prevalence does not vary by gender, education, and income [3].

Although the state-wide prevalence of obesity is 32.9 percent, six counties reported a prevalence higher than the state, including Calhoun, Clay, Gilmer, Logan, Roane and Wayne. The prevalence in one county, Ohio, was significantly lower than the rest of the state [3].

West Virginia ranked lower in the percentage of the adult population that is overweight but not obese (BMI of 25 and 29.9), at 35 percent, compared to the 36.3 national percentage. Among BRFSS participants, West Virginia ranked 41st in 2010. In contrast to obesity, men had a significantly higher prevalence for being overweight than women and the population became increasingly overweight with age. Additionally, the population earning more than $75,000 per year had a greater prevalence of overweight than lower income populations, especially those making less than $15,000 per year [3].

Overall, West Virginia's population has become more obese, as the obesity prevalence has risen from 12.2 percent in 1986 to 32.9 in 2010. The overweight prevalence, however, has remained

nearly stable, from 35.2 percent in 1986 to 35 percent in 2010 (Figure 11) [3].

The growing rate of obesity in West Virginia is concerning because of the health consequences for individuals and the potential health costs of obesity, which the CDC calculated at $147 billion in 2008 [7]. These costs and the health problems contributing to them will continue to rise as obesity prevalence rises.

Physical Activity

Physical activity is an important factor in controlling weight and lowering risks for cardiovascular disease, Type 2 diabetes, and some cancers. West Virginia, however, has one of the nation's highest rates of inactivity, with 32.9 percent of the population reporting no physical activity outside of job-related activities in 2010, compared to 24.4 percent for the United States. Among the 54 states and territories, West Virginia had the third highest percentage of inactivity in 2010 [3].

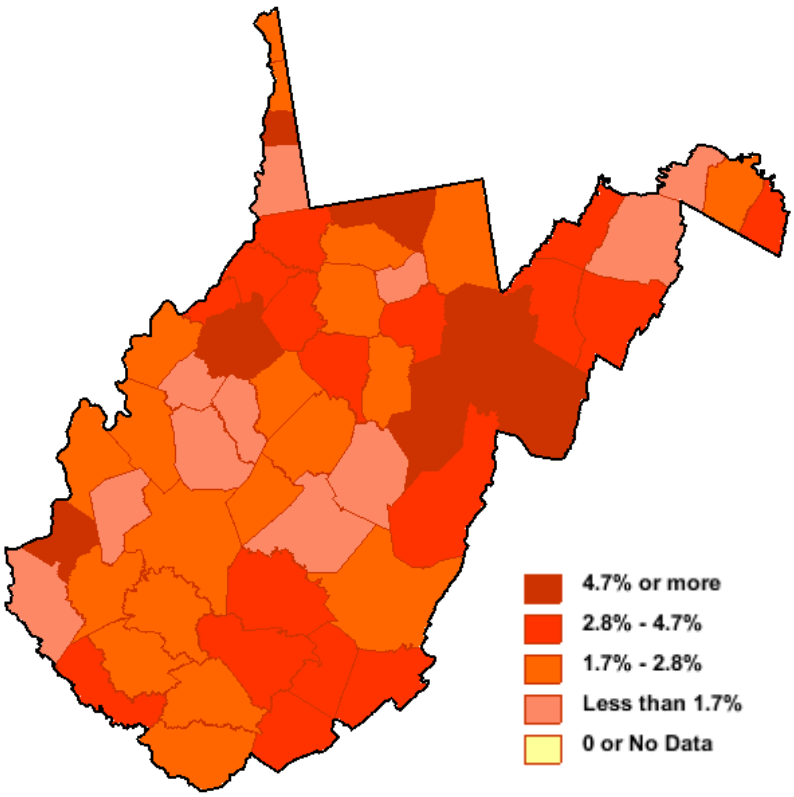

Figure 12. Percentage of workforce who walks or bikes to work
Source: American Community Survey 2010

Four counties in West Virginia (Logan, McDowell, Mingo and Wyoming) reported a much higher prevalence of physical inactivity than the state percentage. Additionally, six counties (Hardy,

	Adults			Students Grades 9-12	
	Physically active	Highly active	No leisure time physical activity	Physically active	Daily physical education
U.S.	64.5%	43.5%	25.4%	17.1%	30.3%
West Virginia	62.2%	41.6%	30.5%	26.4%	21.9%

Table 13. West Virginia and U.S. physical activity percentage comparison
Source: CDC, State Indicator Report on Physical Activity, 2010

Monongalia, Ohio, Pendleton, Pocahontas and Putnam) reported a physical inactivity prevalence lower than the state rate [3].

Prevalence of physical inactivity is not affected by gender, but does increase with age, as those 65 and older report much less physical activity than the population under 45. Both education and income also affect the prevalence of physical inactivity. Residents with higher education reported more activity than those with lower education levels and about half of residents without a high school diploma reported no physical activity. Likewise, the population with an annual income below $15,000 per year reported a much higher prevalence of physical inactivity than the population making $75,000 or more [3].

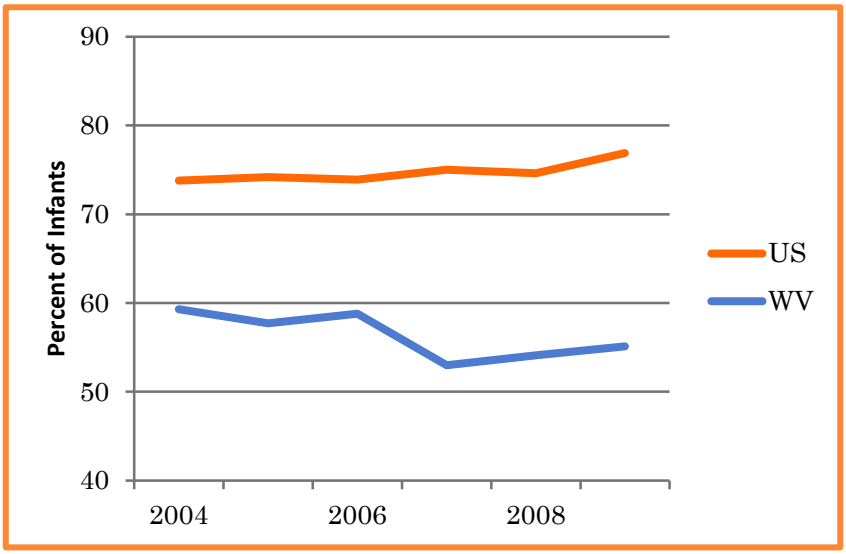

Figure 13. Percent of infants born in 2004-2009 who were ever breastfed
Source: CDC, Breastfeeding Report Cards, 2007-2012

Breastfeeding

Breastfeeding is one of the best ways a mother can protect the health of her infant. Although more than 75 percent of mothers across the U.S. begin breastfeeding their babies at birth, only 47.2 percent are breastfeeding at six months and only 16 percent of infants are exclusively breastfed at six months. By 12 months, only 15.5 percent of mothers are still breastfeeding (Table 14). [8,9]

In West Virginia those numbers are much lower, as only 55 percent of mothers begin breastfeeding at birth and only 28 percent are still breastfeeding at six months, with 9.1 percent exclusively breastfeeding at six months. [9]

Across the United States breastfeeding numbers have been increasing in response to greater support by hospitals, lactation experts and state policies (Figure 13) [9]. As the United States breastfeeding percentages have risen,

	Ever Breastfed	Breastfeeding at 6 months	Breastfeeding at 12 months	Exclusive breastfeeding at 3 months	Exclusive breastfeeding at 6 months
U.S.	76.9%	47.2%	15.5%	36%	16.3%
West Virginia	55.1%	28.1%	15.4%	23.3%	9.1%

Table 14. Percent of 2009 babies breastfed by age, West Virginia and United States
Source: CDC, Breastfeeding Report Card 2012, National Immunization Survey

Health Behaviors

	# of La Leche League Leaders per 1,000 live births	# of IBCLCs* per 1,000 live births	# of state health department FTEs** dedicated to breastfeeding	State child care center regulation supports lactation***
U.S.	.95	3.24	125.06	6 optimal
West Virginia	.49	3.27	1	No

***IBCLC – International Board Certified Lactation Consultant**
*****Based on the PCO/CFOC IA 1 standard**
****FTE – Full-Time Equivalent**

Table 15. Breastfeeding support, West Virginia and United States
Source: CDC, Breastfeeding Report Card 2011 and 2012, National Immunization Survey

West Virginia has seen a decrease in the percentage of breastfeeding, from 59.3 percent of infants born in 2004 to 55 percent born in 2008 [9].

Seat Belt Use

Motor vehicle accidents are the nation's leading cause of death for persons ages 5-34. Wearing a seat belt is the single best way to save lives and reduce injuries in motor vehicle accidents. Nationally, seat belt use has increased nearly every year since 1994, improving from 58 percent to 84 percent in 2011 [10,11]. Much of this increase occurred after seat belt use laws were put in place, especially in "primary law states," where a vehicle can be stopped by police if the driver is not wearing a seatbelt. In "secondary law states" police can still ticket drivers if someone in the vehicle is not wearing a seat belt, but only if they stopped the vehicle for some other reason. [11]

West Virginia's seat belt use rate increased from 49.5 percent in 2000 to the 82.1 percent in 2010,

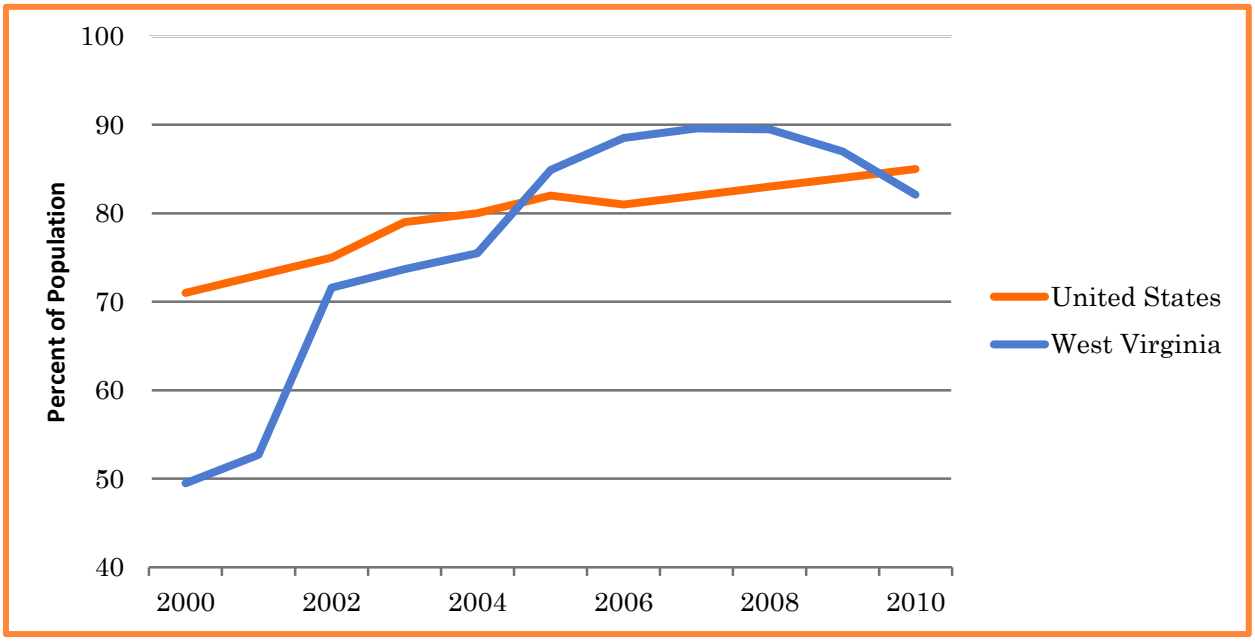

Figure 14. Percent of population wearing a seat belt, 2000-2010
Source: National Highway Traffic Safety Administration, Traffic Safety Facts, December 2011; West Virginia Department of Transportation, Safety Belt Use in West Virginia, 2010

Health Behaviors

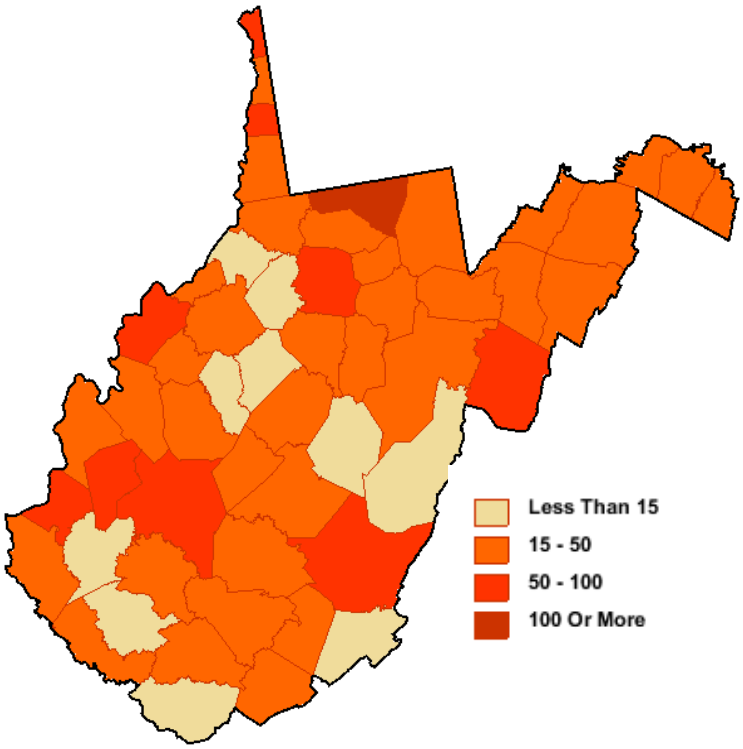

Figure 15. West Virginia dentists per 100,000 population
Source: County Health Rankings 2012

although the 2010 rate was a decrease from the state's peak rate of 89.6 percent in 2007 [12].

Twelve West Virginia counties saw a decline in seat belt use from 2009 to 2010 and three counties dropped below 80 percent in 2010, including Kanawha (62.3 percent), Mercer (78.8 percent) and Mineral (78.8 percent) [12].

Among West Virginia's high school students, seat belt rates are lower, as 13.8 percent reported rarely or never wearing a seat belt in 2011, an improvement from 15.2 percent in 2003, but still higher than the national rate of 7.7 percent [13].

Factors affecting seat belt use include gender, vehicle type, which road a vehicle traveled and geography. As reported by the West Virginia Department of Motor Vehicles, men were significantly less likely to wear seat belts than women. Drivers and passengers in trucks were also less likely to wear seat belts, while drivers in vans and utility vehicles were most likely to buckle up. However, regardless of vehicle type, drivers traveling on local service roads were significantly less likely to wear a safety belt [12].

Geographically, residents in the eastern panhandle region and passengers in the southern region of West Virginia were less likely to wear a seat belt, while drivers in the north central region and passengers in the northern panhandle were more likely to be seat belt users [12].

Although West Virginia is not a "primary law state," a statute is in place that requires all drivers and front seat passengers to wear a seat belt. Additionally, passengers in the back seat under age 18 must also wear a seat belt. Anyone charged with violating this law can be fined up to $25 [14].

Oral Health

Oral diseases can have a daily impact on those suffering from them, influencing the way they

Health Behaviors

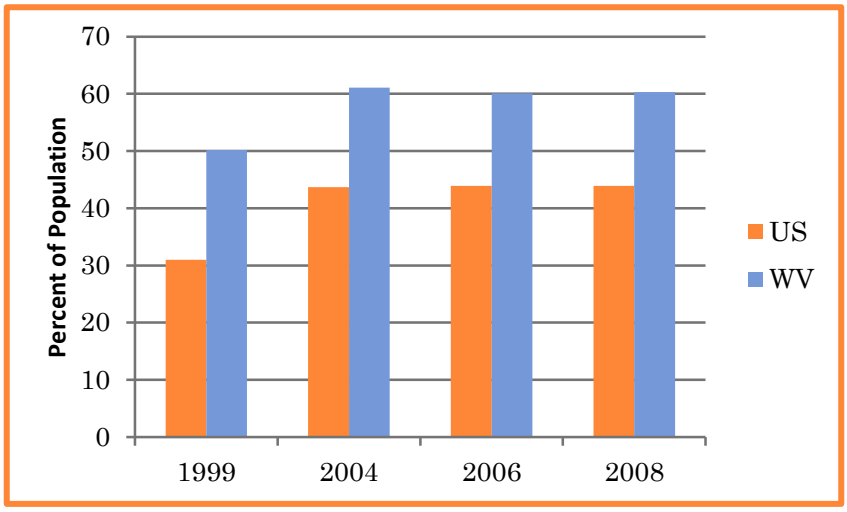

Figure 16. Adults who have had permanent teeth extracted
Source: West Virginia Oral Health Plan 2010-2015, BRFSS data

look, the food they eat and the way they communicate. Oral diseases can also affect economic productivity and the ability to work both inside and outside the home. Teeth cleaning and regular dental visits are important to maintaining oral health [15].

In West Virginia, 38.6 percent of residents in 2010 responded that it had been more than a year since they had their teeth cleaned by a dentist or dental hygienist, compared to the national percentage of 32.1. Among the national BRFSS participants in 2010, West Virginia ranked 8th highest for this indicator [3].

Men were much less likely to get their teeth cleaned (42.5 percent) compared to women (34.8 percent). Additionally, those with higher levels of educational attainment and income were more likely to get their teeth cleaned every year than those with less than a high school education or those making less than $15,000 per year [3].

Along with the number of West Virginians who do not have their teeth cleaned regularly, 60 percent of state residents were missing at least one tooth and 30 percent were missing six teeth or more. Among those aged 65 and older, 36 percent reported missing all of their teeth [3].

As seen in Figure 16 and 17, West Virginia has a significantly higher percentage both of adults who have had permanent teeth extracted and adults over age 65 who are missing all of their permanent teeth [15].

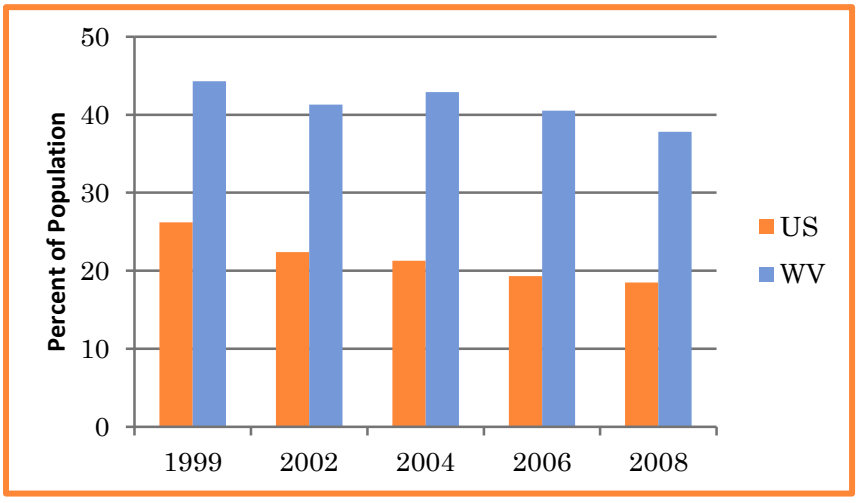

Figure 17. Adults age 65 and older who have had all natural teeth extracted
Source: West Virginia Oral Health Plan 2010-2015

Health Behaviors

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Infant, Child, & Adolescent Health

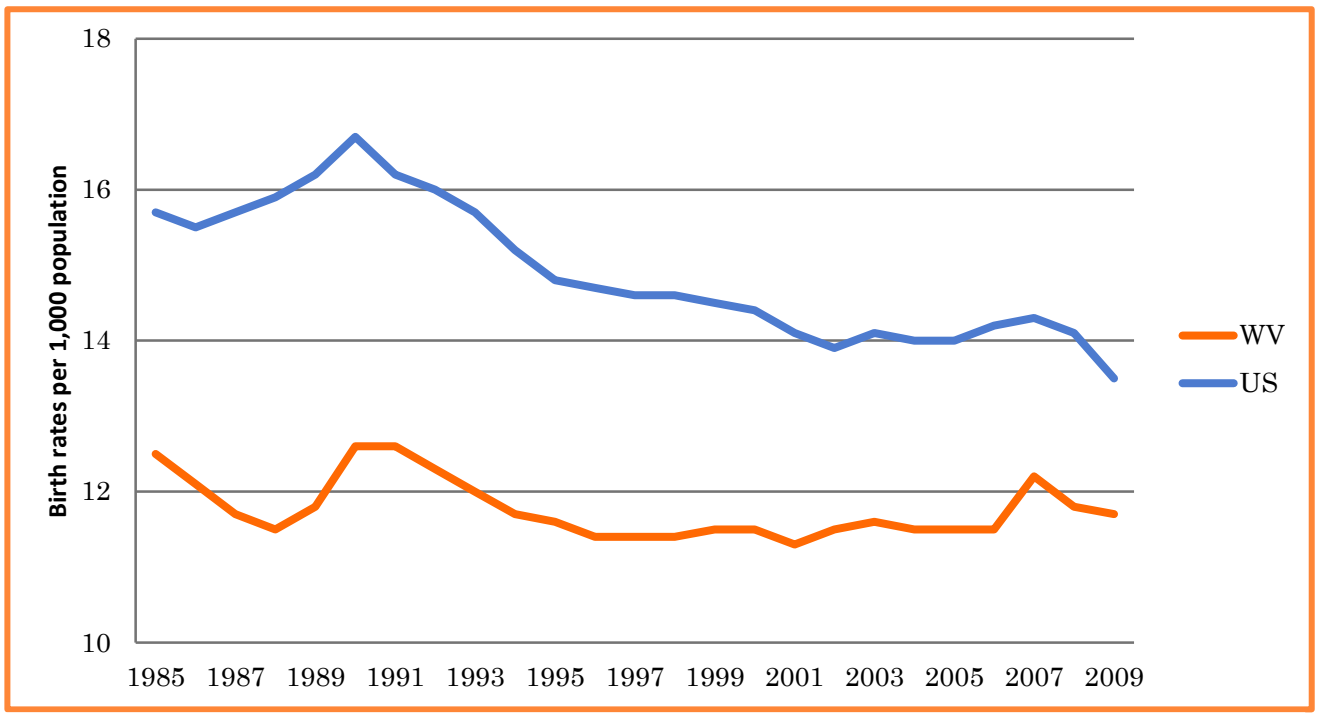

Figure 17. Birth rate per 1,000 population, West Virginia and United States, 1985 to 2009
Source: West Virginia Bureau for Public Health, Health Statistics Center (2012) WV Vital Statistics, 2009

Birth Rates

West Virginia's birth rates have been below the national rates since 1985 and, except for a slight increase in 2007, have been falling or remaining steady since 1990. In 2009, West Virginia's birth rate was 11.7 per 1,000 population, well under the U.S. rate of 13.5 per 1,000 population [1].

West Virginia's 2009 fertility rate of 61.8 live births per 1,000 women aged 15-44 was also well below the national rate of 66.7 [1].

Since 1925, West Virginia's birth rate has fallen from 28.4 to 11.7 per 1,000 population in 2009, while the state's death rate has continued to rise, from 10.8 per 1,000 population in 1925 to 11.8 in 2009 [1]. Currently, the state's death rate is higher than the rate of live births, drawing attention to one reason why the state's population is getting older and few counties are experiencing a population increase (exceptions include Berkeley County, with a 78 percent population increase due to its proximity to Washington, D.C.) [1,2].

15-19		20-44		Total (15-44)	
West Virginia	United States	West Virginia	United States	West Virginia	United States
49.5	39.1	63.9	72.1	61.8	66.7

Table 16. Fertility rates by age group, West Virginia and U.S., 2009
Source: West Virginia Bureau for Public Health, Health Statistics Center (2012) WV Vital Statistics, 2009

Prenatal Care

Prenatal care is extremely important for pregnant mothers to keep both mother and baby

Infant, Child, & Adolescent Health

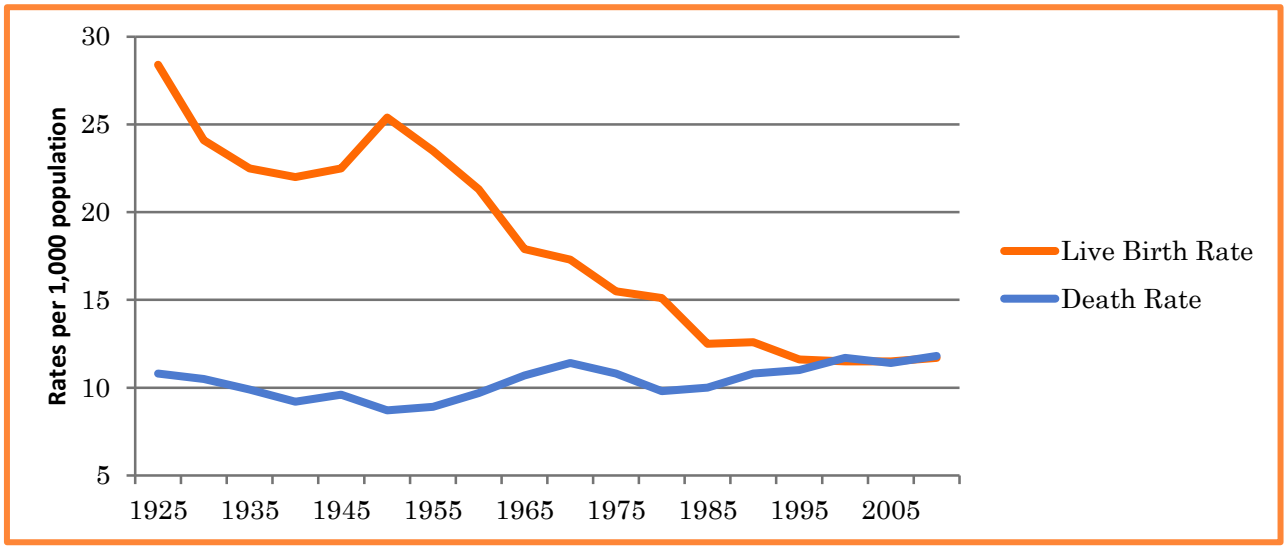

Figure 18. West Virginia live birth and death rates per 1,000 population, 1925 to 2009
Source: West Virginia Bureau for Public Health, Health Statistics Center (2012)
West Virginia Vital Statistics, 2009

healthy. Without it, babies are three times more likely to have a low birth weight and five times more likely to die than babies whose mothers received care. Prenatal visits allow doctors to treat health problems early and give pregnant women advice about what they can do to keep themselves and their babies healthy [3].

In 2009, 82.1 percent of mothers who received prenatal care began their care during the first trimester, compared to the national rate of 70.8 percent in 2007 (most current data available) [4].

Of those who received prenatal care, a higher percentage of white mothers (82.5 percent) began care during the first trimester than black mothers (72.2 percent). These rates are higher than the 2007 national figures of 72.2 percent of white mothers and 59 percent of black mothers who received first trimester prenatal care [4].

Among those who did not receive prenatal care at all were 0.6 percent of white mothers and 1.6 percent of black mothers [1], signaling a racial disparity among those who receive prenatal care at all, as well as those who receive it beginning in the first trimester.

Low Birth Weight & Infant Mortality

Low birth weight is an important predictor of infant well-being and survival. Lower birth weight signals a greater risk of long-term morbidity and early death. Twenty-four percent of all infants born in the United States in 2008 with a very low birth weight (less than 1,500 grams or 3 pounds, 5 ounces) died within their first year of life, compared to 0.2 percent of infants born at 2,500 grams (5 pounds, 8 ounces) or above, and 1.4 percent of infants born

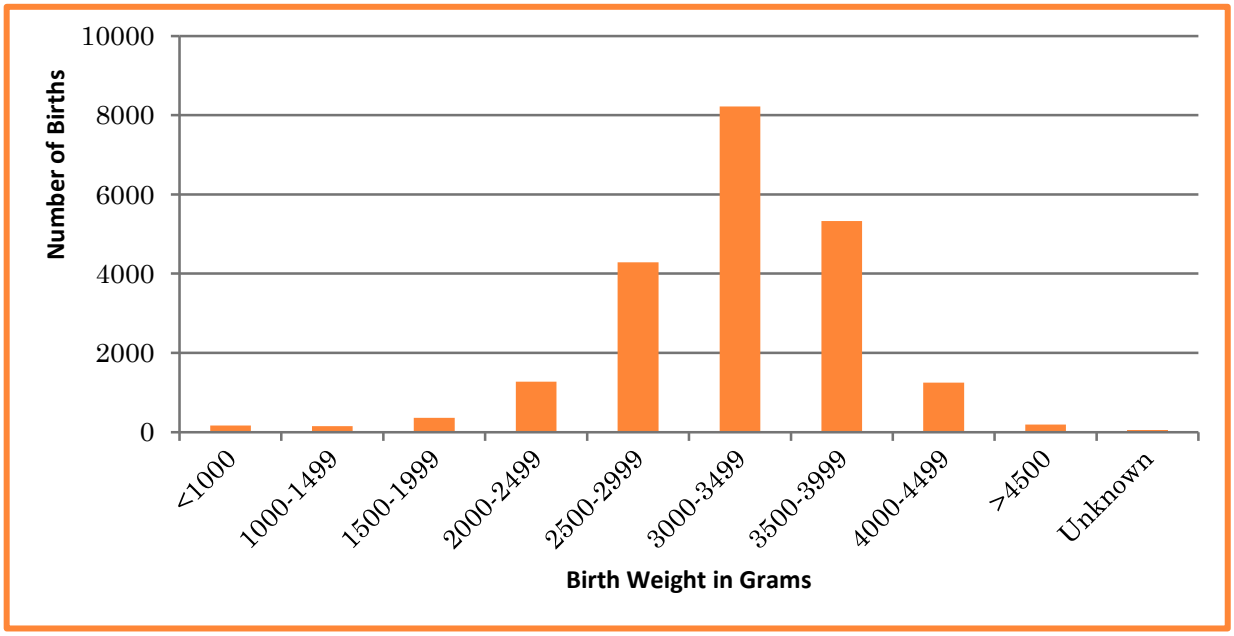

Figure 19. West Virginia resident birth weight in grams, 2009
Source: West Virginia Bureau for Public Health, Health Statistics Center (2012) West Virginia Vital Statistics, 2009

with a moderately low birth weight (1,500-2,499 grams) [5].

In West Virginia, 1,957 infants were born with a low birth weight in 2009, representing 9.2 percent of all births (compared to the national rate of 8.16 percent in 2009 and 8.15 in 2010) [1,5]. Of those infants, 66.8 percent were preterm babies [1].

Of all resident births in West Virginia in 2009, 9 percent of babies born to

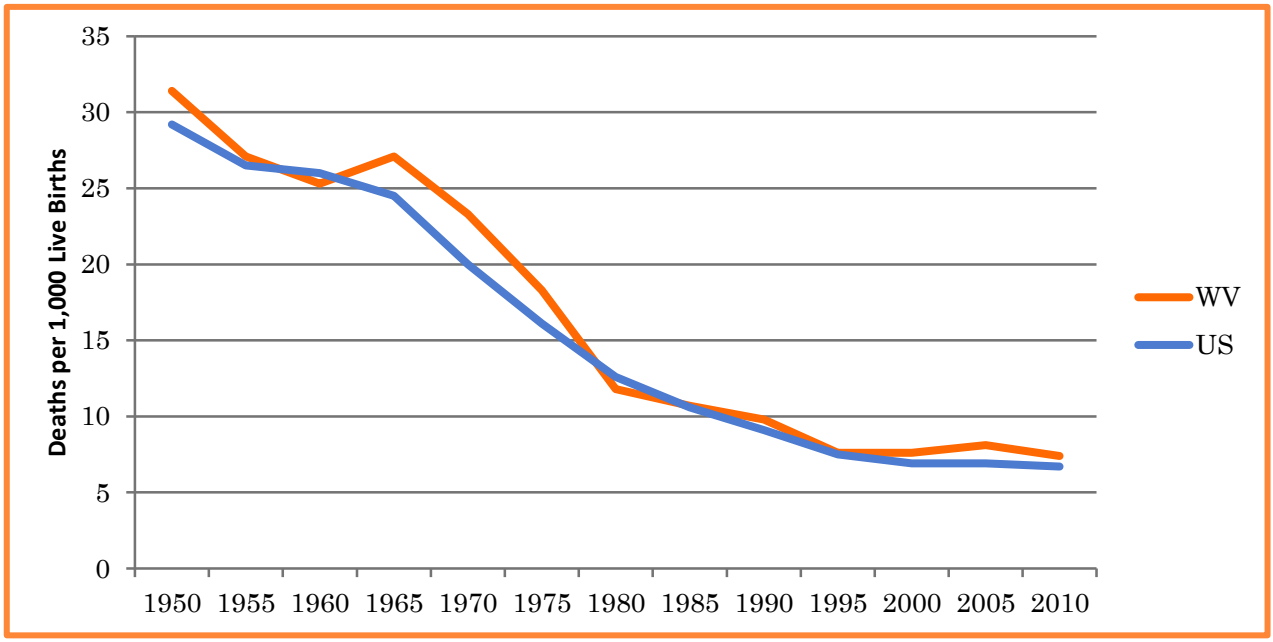

Figure 20. Infant mortality rates, 1950-2010, West Virginia and United States
Source: West Virginia Bureau for Public Health, Health Statistics Center (2012) WV Vital Statistics, 2009; United Health Foundation, America's Health Rankings

white mothers and 14.6 percent of babies born to black mothers had a low birth weight. Nationally, infants with a low birth weight were born to 7.2 percent of white mothers and 13.6 percent of black mothers in 2009. Additionally, 12.2 percent of all infants born in the United States in 2009 were preterm, with 10.9 percent of births to white mothers and 17.4 percent of births to black mothers being preterm [1].

Low birth weights are closely related to infant mortality. In West Virginia, 7.6 infants per 1,000 live births died before their first birthday in 2011, a number that is higher than the national rate of 6.7 and ranks West Virginia 37th among the United States [6]. West Virginia's infant mortality rate has remained fairly steady since 1996, but has consistently been above the national rate (Figure 20).

Large disparities in infant mortality rates exist between West Virginia's white and black populations, as the 2009 white infant mortality rate was 7.4 per 1,000 live births, while the rate for black infants was 20.6. The national rates were 5.3 for white infants and 12.7 for black infants [1].

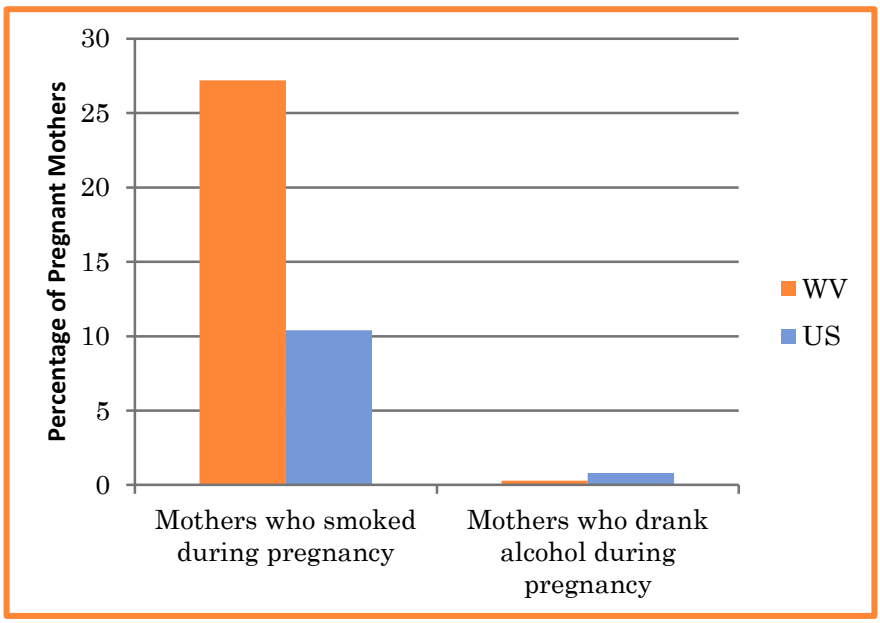

Figure 21. Smoking and alcohol use during pregnancy, West Virginia (2009) and United States (2007, 2004)
Source: West Virginia Bureau for Public Health, Health Statistics Center (2012) West Virginia Vital Statistics, 2009

Smoking & Alcohol Use During Pregnancy

Mothers who smoke during their pregnancy are more likely to experience health problems for both themselves and their babies, including pregnancy complications, premature birth, low-birth-weight infants, stillbirth and Sudden Infant Death Syndrome (SIDS) [7]. Women who drink alcohol during pregnancy can also face serious issues including miscarriage, stillbirth and a variety of lifelong disorders, including abnormal facial features, learning disabilities, speech and language delays, poor reasoning and judgment skills, vision or hearing problems, and problems with the heart, kidney or bones [8].

In West Virginia in 2009, over a quarter of mothers (27.2 percent) smoked during their pregnancies, and 0.3 percent of women reported using alcohol during their pregnancy. Nationally, 10.4 percent of women reported smoking while pregnant in 2007 and 0.8 percent reported alcohol use in 2004 (most recent data available) [1].

Of the West Virginia mothers who reported smoking during pregnancy, 14.1 percent of infants were born with low birth weight, compared to 7.4 percent of infants born to non-smoking mothers [1]. As noted above, low birth weight is an important predictor of infant well-being and survival. Infants with low birth weights have a greater risk for long-term morbidity and early death, making it important for mothers to cease smoking during pregnancy to reduce their chance of a low birth weight baby [5].

Dental Problems in Children

Tooth decay and oral diseases affect more children in the United States than any other chronic infectious disease. When untreated, tooth decay causes pain and infections and can lead to problems eating, speaking, playing and learning. However, tooth decay is easily preventable by using dental sealants and fluoride [9].

In the 2007 National Survey of Children's Health, 17.4 percent of West Virginia's children had experienced at least one problem with their teeth and 7.9 percent had experienced two or more problems. Ten percent of children had experienced a toothache in the six months preceding the survey and 18.9 percent reported having decaying teeth or cavities within that six months. Also within the six months prior to the survey, 3.5 percent reported having broken teeth and 2.2 percent reported bleeding gums [10].

When asked about the overall health of their child's teeth, 75.4 percent of parents responded that their child's teeth were in excellent or very good condition, while 19.4 percent reported good condition and 5.1 percent reported fair condition [10].

These numbers are consistent with national numbers data reported by the 2007 survey, as 70.7 percent reported their teeth to be in excellent or very good condition, while 20.9 reported good condition and 8.4 percent reported fair condition. Nationally, 18.3 percent reported at least one problem with

	Overall health of child's teeth			Problems with teeth		Prevalence of oral health problems			
	Excellent/very good	Good	Fair	One	Two or more	Toothache	Decaying teeth or cavities	Broken teeth	Bleeding gums
WV	75.4	19.4	5.1	17.4	7.9	10.1	18.9	3.5	2.2
US	70.7	20.9	8.4	18.3	8.4	10.7	19.4	4.1	3.3

Table 17. Prevalence of children's oral health problems, West Virginia and U.S., 2007
Source: National Survey of Children's Health, 2007

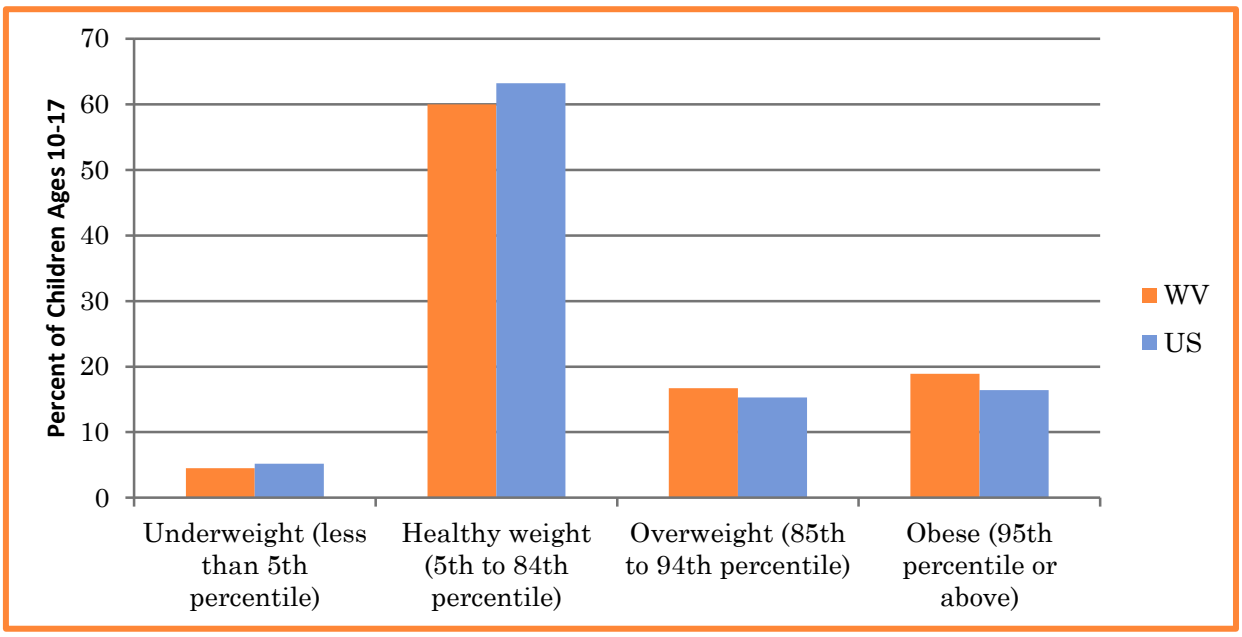

Figure 22. Weight status of child based on body mass index, 2007, West Virginia and United States
Source: National Survey of Children's Health 2007

their child's teeth in the past six months, while 8.4 percent reported two or more problems [10].

Nationally, 10.7 reported a toothache in the past six months, 19.4 percent reported decayed teeth or cavities, 4.1 percent reported broken teeth and 3.3 percent reported bleeding gums [10].

According to West Virginia's 2010 Oral Health Plan, the most current figures available in West Virginia are for 1998 and indicate that 65.6 percent of children age eight and 66 percent of adolescents age 15 had experienced tooth decay. Thirty-five percent of children ages six to eight and 32.9 percent of adolescents age 15 had untreated tooth decay in 1998. Throughout the state, only 36.7 percent of children age eight and 34.6 percent of adolescents age 14 had dental sealants in 1998 [11].

Overweight/Obesity in Children

Childhood obesity can have both short-term and long-term effects on a child's health. In the short-term, obese youth are at a greater risk for high cholesterol or high blood pressure, risk factors for cardiovascular disease. Obese adolescents are predisposed to diabetes and are at greater risk for bone and joint problems, sleep apnea, and social and psychological problems. In the long-term, obese youth are more likely to remain obese as adults and are at a greater risk for adult health problems such as heart disease, Type 2 diabetes, stroke, some cancers and osteoarthritis. These risks can all be lessened by helping children maintain healthy lifestyle habits, including eating healthy and getting enough physical activity [12].

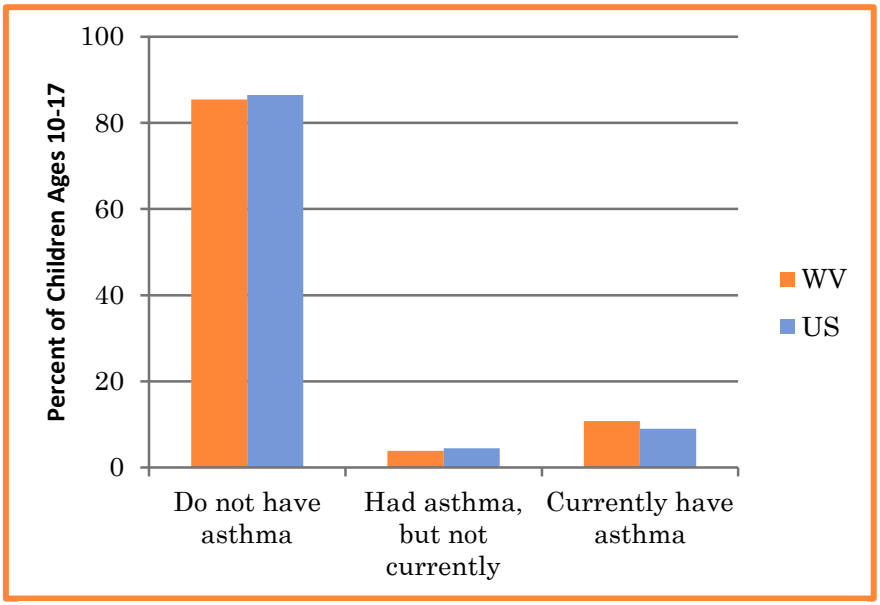

Figure 23. Asthma experience in children, 2007
Source: National Survey of Children's Health 2007

In West Virginia, 16.7 percent of children ages 10-17 were overweight in 2007 and 18.9 percent were considered obese. Nationally, 15.3 percent of children ages 10-17 were considered overweight and 16.4 percent were obese. Also in 2007, only 33.2 percent of children ages 6-17 in West Virginia reported 20 minutes of some type of physical activity every day, while 34.3 percent were active 4-6 days a week, 24.5 percent were active 1-3 days a week and 8 percent were not active at all [13].

These rates are higher than the national rates, as 29.9 percent of children in the U.S. are active every day, while 10.3 percent are not active at all [13].

Among high school students, 15.7 percent reported being overweight and 14.6 percent were obese in 2011, compared to the national rates of 15.2 percent overweight and 13 percent obese. Additionally, 13.3 percent of West Virginia high school students did not participate in at least 60 minutes of physical activity on any day during the seven days prior to the survey, compared to 13.8 percent nationwide [14].

Asthma

Asthma is a serious condition that can decrease quality of life, cause emergency room visits, hospitalizations and even death. Children experiencing asthma are more likely than adolescents or adults to be hospitalized because of the condition. Asthma is one of most prevalent chronic diseases among children and accounts for millions of missed school days nationwide [13].

In West Virginia in 2007, 10.8 percent of children ages 0-17 (approximately 31,000 children [14]) were currently experiencing asthma and 3.9 percent had experienced the condition at some point, but not at the time of the survey [10].

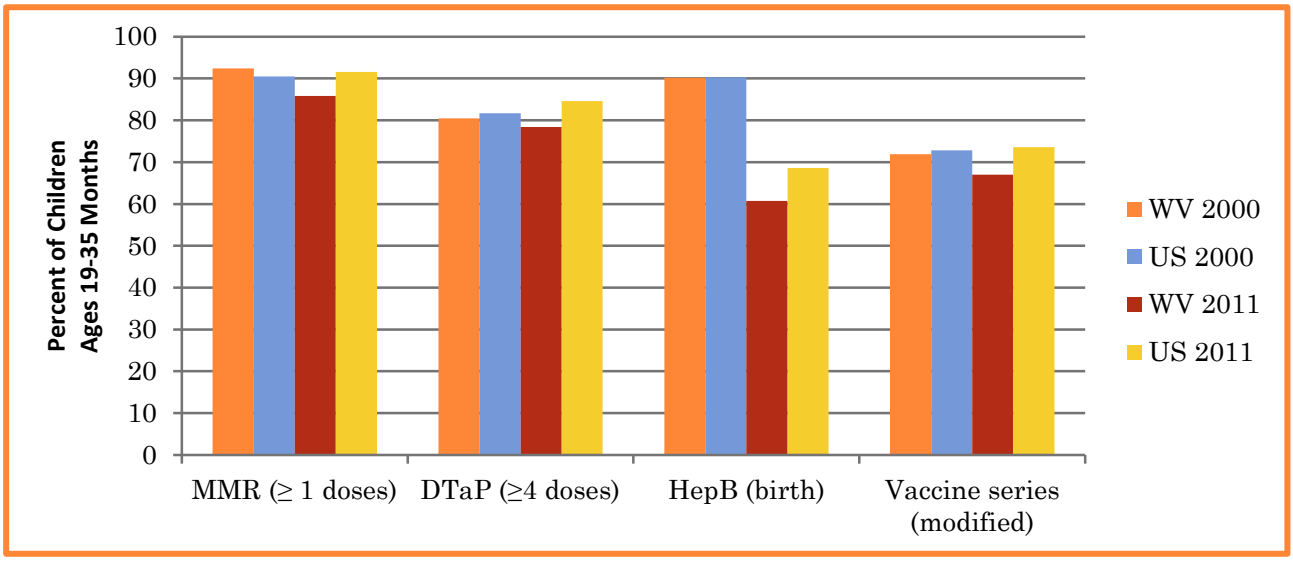

Figure 24. Estimated vaccination coverage for vaccination series (modified) and selected individual vaccines among children aged 19-35 months, 2000 and 2011
Source: National Immunization Survey, 2000 and 2011

Of those experiencing asthma, approximately 60 percent had an asthma attack in the past 12 months and all were more likely to have fair or poor health than those without asthma [14].

West Virginia's asthma rates are slightly higher than the national rates, as nationwide 4.5 percent of children age 0-17 had asthma at some point, and 9 percent were currently suffering from asthma [10].

Among West Virginia's high school students, 22.7 percent reported in 2011 having ever been told they had asthma and 11.5 percent still had asthma. Nationally, 23 percent of students said they had ever been told they had asthma; 11.9 percent still experienced the condition [15].

Immunizations

High immunization coverage in children by age 2 has resulted in low levels of most vaccine-preventable diseases in the United States. However, it is important to continue coverage to prevent the resurgence of these diseases [16].

West Virginia's immunization rates are below national rates; in 2011 only 67 percent of children aged 19-35 months received the recommended vaccine series, compared to 73.6 percent of children nationwide [16].

	MMR (≥ 1 doses)	DTaP (≥4 doses)	HepB (birth)	HepA (≥2 doses)	Rotavirus	Vaccine series (modified)
West Virginia	85.8	78.4	60.7	56	60.2	67
United States	91.6	84.6	68.6	52.2	67.3	73.6

Table 18. Estimated vaccination coverage for vaccination series (modified) and selected individual vaccines among children aged 19-35 months, 2011
Source: National Immunization Survey, 2011

While 85.8 percent of West Virginia children ages 19-35 months received their recommended MMR immunization, only 56 percent were vaccinated for Hepatitis A, 78.4 percent received the DTaP vaccination and 60.7 received the Hepatitis B vaccination. All of these immunization rates except the Hepatitis A rate are below national rates (Table 18) [16].

West Virginia's immunization rates of adolescents aged 13-17 are also much lower than national rates, as only 68.6 percent of West Virginian adolescents received one or more doses of Td or Tdap by 2011, compared to 85.3 percent of adolescents nationwide. Similarly, only 54.9 percent of West Virginia adolescents received one or more doses of a meningococcal conjugate vaccine, compared to 70.5 percent of adolescents nationwide [17].

HPV immunizations rates are also much lower in West Virginia than the United States as whole. Only 58.7 percent of females aged 13-17 completed the HPV dose series and only 6.9 percent of males received one or more doses of the HPV vaccine (Table 19) [17].

Low vaccination rates are not a new problem for West Virginia, as the state has historically been ranked in the lower tier of states [18].

Bicycle Helmet Use in Youth

Bicycling is a popular activity for children in the United States and one of their most common modes of transportation. This activity can be dangerous, as about 300 children die in the U.S. each year and 430,000 are injured due to bicycle accidents. Many of these deaths and injuries could be prevented by wearing a bicycle helmet, as it decreases the risk of serious brain injury by up to 85 percent [19].

Although wearing a helmet is an important safety measure, 85.8 percent of high school students in West Virginia who had ridden a bicycle in the 12 months preceding the survey reported rarely or never wearing a bicycle helmet in 2011. Nationally, 87.5 percent of students reported rarely or never wearing a helmet [15].

Bicycle helmet rates have changed very little since 2003, when 84.9 percent of West Virginia students

	All adolescents aged 13-17			Females only			Males only		
	≥1 Td or Tdap	≥1 Tdap	≥1 MenACWY	≥1 HPV	≥3 doses HPV	HPV dose series completion	≥1 HPV	≥3 doses HPV	HPV does series completion
West Virginia	68.6	60.1	54.9	50.6	28.6	58.7	6.9	NA	NA
United States	85.3	78.2	70.5	53	34.8	70.7	8.3	1.3	28.1

Table 19. Estimated vaccination coverage for vaccination series among adolescents aged 13-17, 2011
Source: National Immunization Survey, 2011

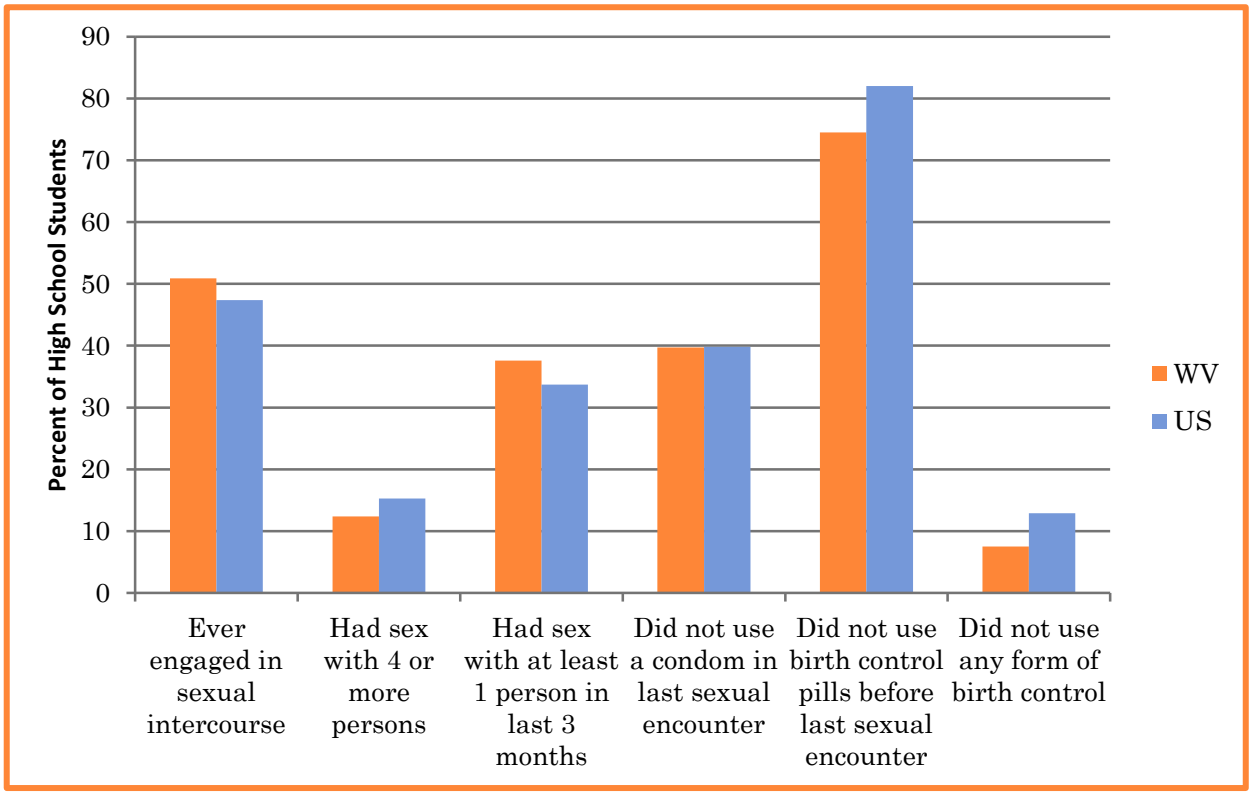

Figure 26. High school students' reported sexual behavior, 2011
Source: CDC, Youth Behavior Surveillance System 2011

reported rarely or never wearing a bicycle helmet, compared to 85.9 percent of students nationwide [15].

The West Virginia Bicycle Helmet Statute states that it is unlawful for anyone under 15 to ride a bicycle without a helmet or for guardians to allow anyone under 15 to ride without a helmet, however, few youth take advantage of this important safety measure [20].

Teen Pregnancy

In 2009, 2,850 infants were born to mothers aged 10-19 in West Virginia, a 2.5 percent increase above the number of teenage pregnancies in 2008.

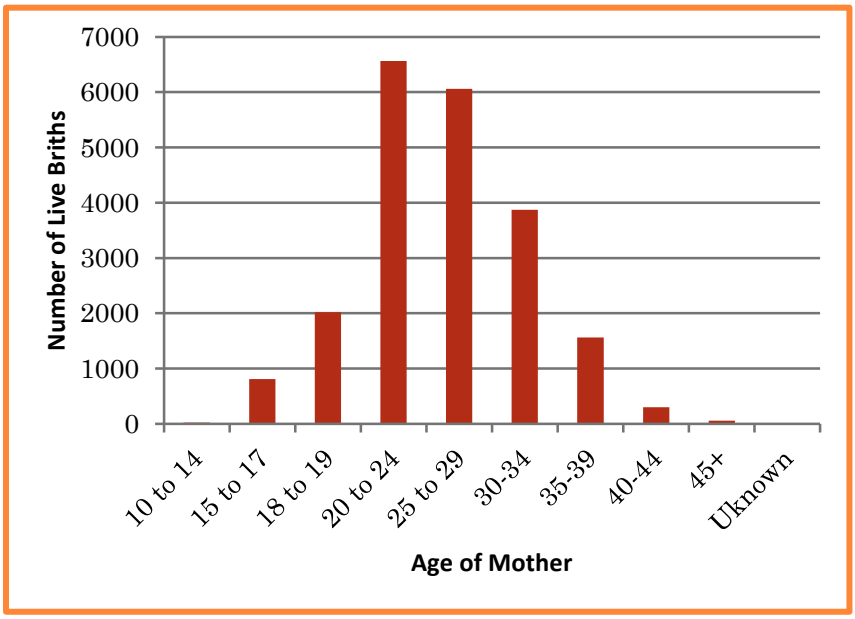

Figure 25. Age of mother, West Virginia resident births, 2009
Source: West Virginia Bureau for Public Health, Health Statistics Center (2012) West Virginia Vital Statistics, 2009

Infant, Child, & Adolescent Health

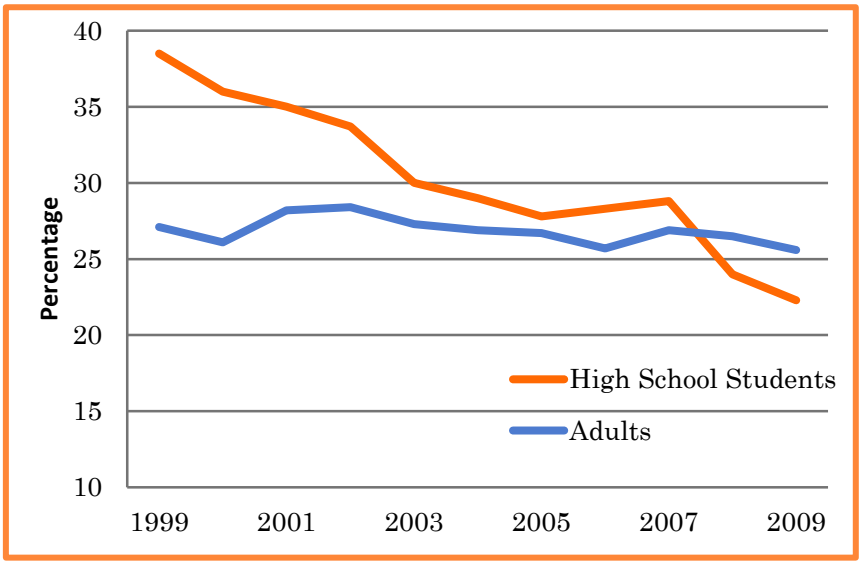

Figure 27. Cigarette smoking in West Virginia, 1999 to 2009
Source: West Virginia Youth Tobacco Survey, 2007 & 2009, West Virginia Bureau for Public Health, 2011

Overall, babies born to teenage mothers represented 12.9 percent of the infants born in West Virginia in 2009. This percentage is well above the national rate of 10 percent in 2009. Of the infants born to teenage mothers, 81.2 percent were born out of wedlock [1].

Contributing factors to teenage pregnancies include sexual behaviors such as engaging in sexual intercourse and not using some form of birth control. In 2011, 50.9 percent of West Virginia high school students reported having sexual intercourse at some point in their lives, compared to 47.4 percent of students nationwide. In West Virginia, 12.4 percent of students reported having sex with four or more persons and 37.6 percent reported having sex with at least one person during the three months before the survey. Nationwide, 15.3 percent of students reported having four or more sexual partners and 33.7 percent reported having intercourse with at least one person in the past three months [15].

Of the West Virginia high school students surveyed, 39.7 reported not using a condom during their last sexual encounter, 74.5 percent did not use birth control pills, and 7.5 percent did not use any method to prevent pregnancy. Nationally, 39.8 percent did not use a condom in their last sexual encounter, 82 percent did not use birth control pills, and 12.9 percent did not use any method of birth control.

Youth Tobacco Use

Although youth tobacco use in West Virginia has been declining, the state's tobacco use rates are still higher than national rates. In 2009 nearly one-third (32.6 percent) of West Virginia high school students had used tobacco in the 30 days prior to being surveyed and 22.3 percent of high school students were current cigarette smokers, while 24.8 percent were smokeless tobacco users [21].

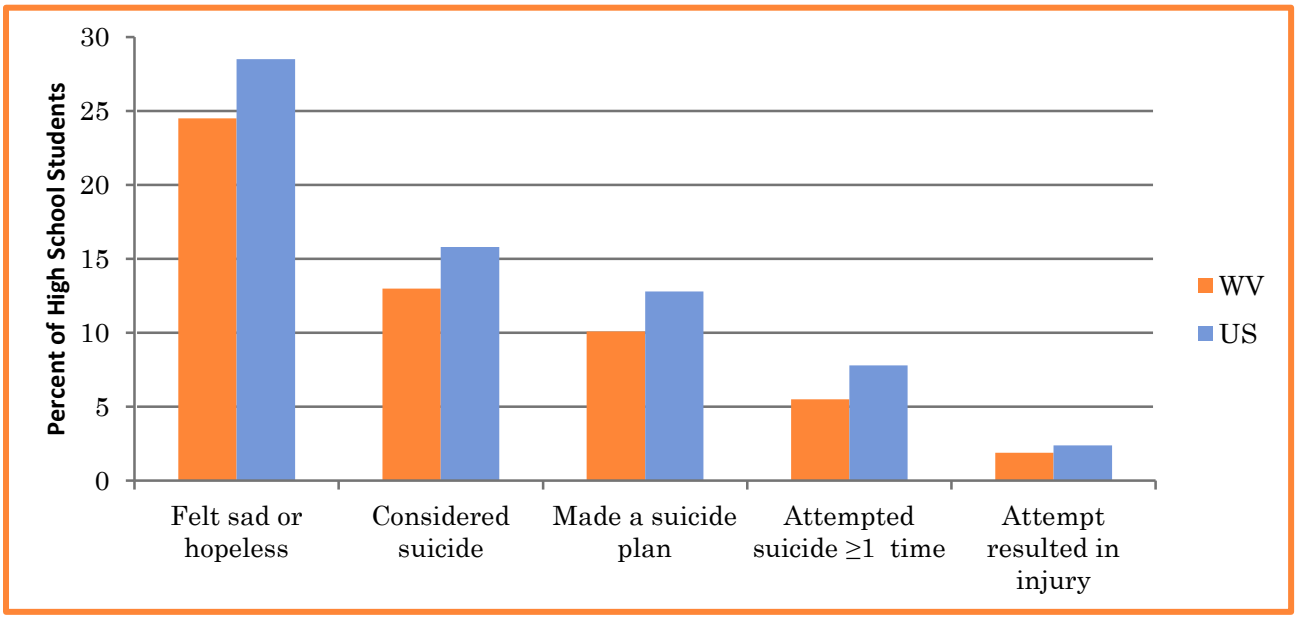

Figure 28. Youth suicide responses, 2011
Source: CDC, Youth Behavior Surveillance System 2011

In 2011, 47.1 percent of West Virginia high school students had ever tried smoking (compared to 44.7 percent nationwide), and 19.1 percent had smoked a cigarette in the past 30 days (10.3 percent nationally). Also in 2011, 14.4 percent of West Virginia students reported using smokeless tobacco at least once in the past 30 days and 27.2 percent reported using some type of tobacco product in the past 30 days. Nationwide, 7.7 percent used smokeless tobacco and 23.4 percent used some type of tobacco product in the last 30 days [15].

As nearly all adults who smoke every day began smoking when they were 26 or younger, reducing youth tobacco use will go a long way to reducing overall dependence on tobacco and the impact tobacco use has on the health of individuals and communities [22].

Youth Suicide

Suicide is the third leading cause of death for youths ages 10 to 24 in the United States, resulting in approximately 4,600 deaths each year. The problem extends beyond deaths, however, as each year approximately 157,000 youth survive their suicide attempts but are injured in the process [23].

In 2011, 13 percent of West Virginia high school students reported considering suicide in the 12 months before the survey, 10.1 percent made a plan about how they would attempt suicide, 5.5 percent actually attempted suicide and 1.9 percent attempted suicide and survived, but had to be treated by a medical professional. These percentages are lower than national rates (Figure 28), but still represent a significant number of the state's high school students [15].

Infant, Child, & Adolescent Health

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Healthcare Access & Quality

Health Insurance Coverage

In 2010, approximately 50 million Americans aged 18 to 64 had no health insurance for at least some of the past 12 months. Those who went without health insurance increased by an average of 1.1 million per year and were more likely to skip medical care because of cost concerns. The decision to forgo medical care can lead to poorer overall health and potentially higher long-term health costs and early death [1].

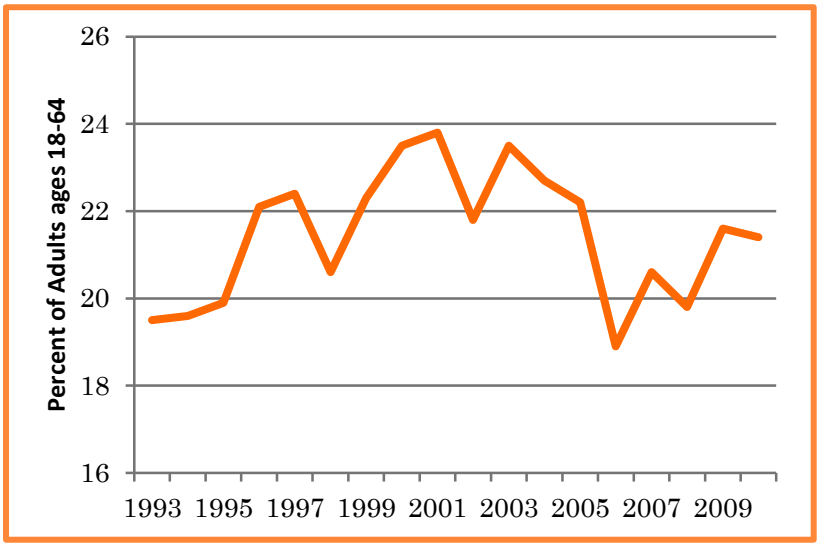

Figure 29. No health care coverage among adults aged 18-64, 1993-2010
Source: West Virginia BRFSS Report, 2009-2010.

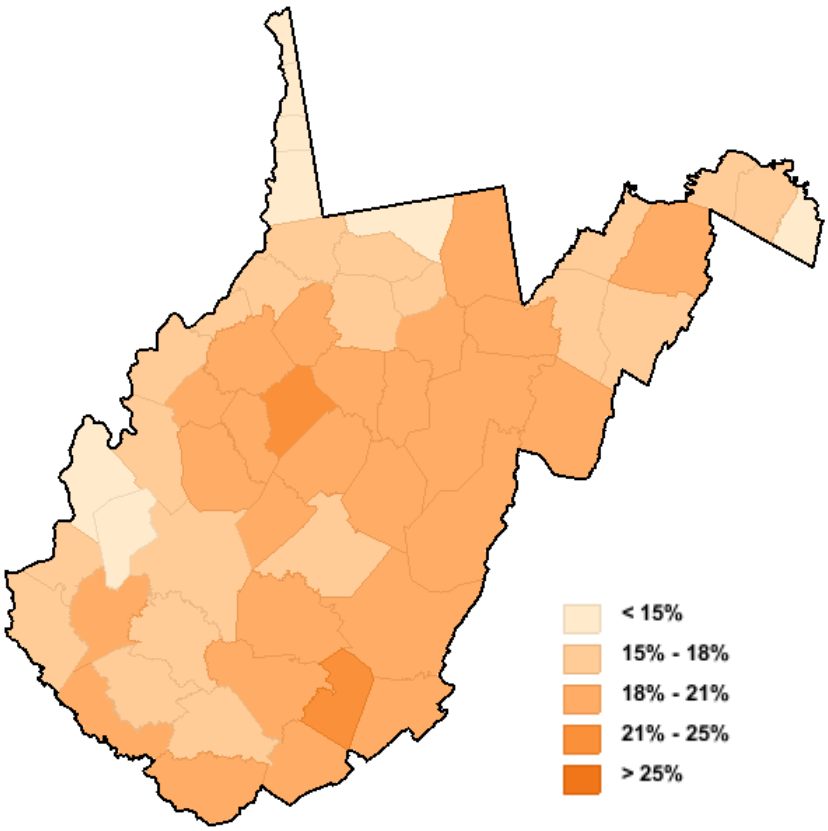

Figure 30. Percent adults 18-64 without health insurance, 2009
Source: County Health Rankings 2012

In 2010, 21.4 percent of adults aged 18-64 did not have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare. This rate was the 12th highest among BRFSS participants and much higher than the national rate of 18.1 percent [2].

West Virginian men (24.1 percent) were more likely to go without insurance than women (19.1 percent), and a lack of health care coverage was significantly more prevalent among residents aged 18 to 44 than those over age 55. Additionally, adults with the least education were

much less likely to have health care coverage, as approximately 1 in 3 adults without a high school diploma lacked coverage. A lack of coverage was also much more common among lower income groups. Forty percent of those with incomes less than $15,000 per year had no health coverage, while only 4 percent of those making more than $75,000 per year lacked coverage [2].

Ten counties in West Virginia had a significantly lower prevalence of health care coverage, including Braxton, Calhoun, Clay, Doddridge, Gilmer, Lewis, Nicholas, Ritchie, Roane and Webster. Additionally, four counties reported a significantly higher prevalence of coverage, including Hancock, Jefferson, Kanawha and Putnam [2].

Access to health care coverage is increasingly important as medical costs continue to increase. In 2010, 31 percent of individuals without a disability who had no insurance coverage skipped or delayed medical care because of cost, while that number increased to 61 percent of individuals with disabilities. With insurance coverage, however, those numbers decreased to 5.8 percent of individuals without a disability and 16 percent of those with a disability [2].

Cost as a Barrier to Health Care

In 2010 nearly 18 percent of all adults needed to see a doctor sometime during the past 12 months and did not because of the cost, the seventh highest percentage among BRFSS participants. Nationally, only 14.6 percent of adults did not receive needed health care due to cost [2].

Factors impacting this statistic include gender, as women (19.5 percent) were more likely to forgo needed care than men (16.4 percent). Prevalence

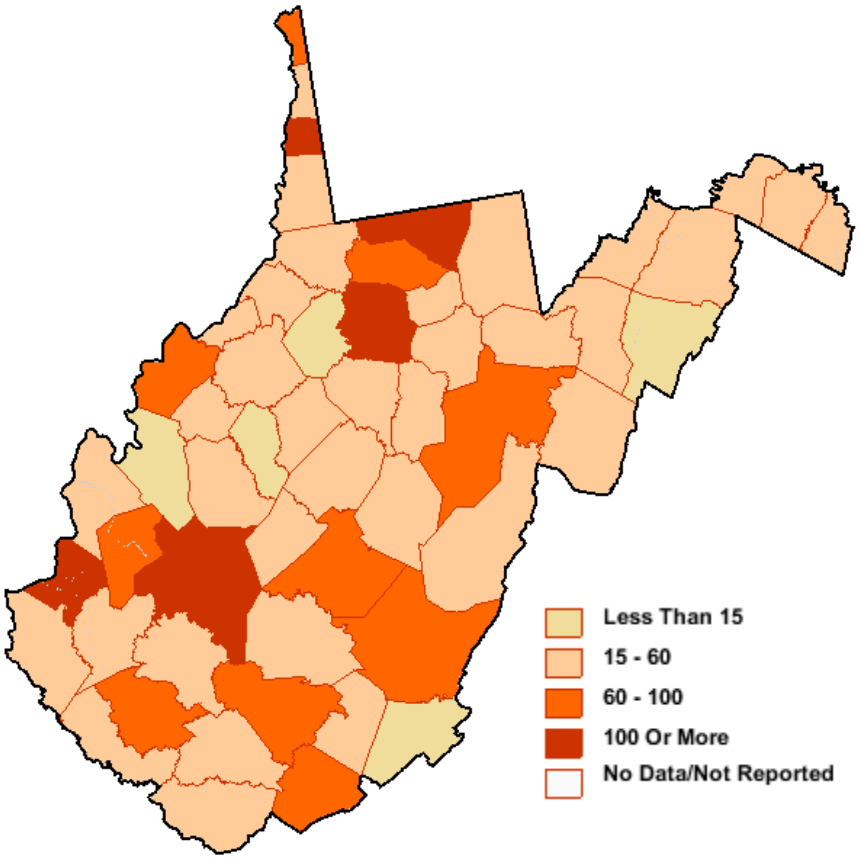

Figure 31. Primary care physicians per 100,000 population
Source: Community Health Status Indicators 2009

of skipping medical care was highest in the 25 to 34 age group and among those with less education and lower incomes [2].

The percentage of individuals not receiving needed health care deserves attention; by avoiding needed care these individuals may face higher costs in the future and even deal with long-term health problems or early death [1].

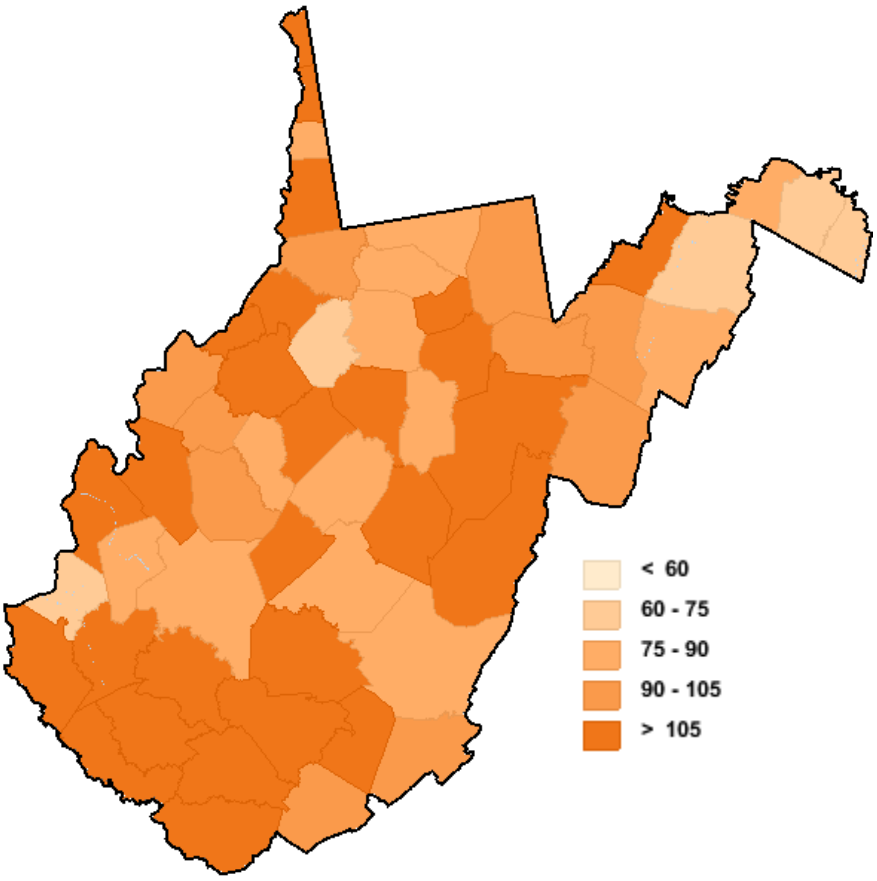

Figure 32. Preventable hospital stay rate per 100,000 population
Source: Dartmouth Atlas 2008- 2009

Access to Primary Care Providers

In 2010, nearly one-fourth (24.1 percent) of West Virginia's population did not have one or more medical professionals they considered a personal doctor or health care provider. This percentage has remained fairly steady since 2001 and is higher than the national rate of 18.2 percent [2].

Men (27.2 percent) were significantly less likely to have a personal doctor than women (16 percent) and younger residents (ages 18-34) were less likely to have a personal physician than older residents. Also, residents with a household income less than $25,000 per year were less likely to have a personal doctor than those making $50,000 or more per year [2].

In 2011, West Virginia had 107.2 primary care physicians for every 100,000 population. This number ranks West Virginia 32nd nationally and is lower than the national rate of 120 physicians per 100,000 population. Primary care physicians include all those who identify as family practice physicians, general practitioners, internists, pediatricians and obstetricians or gynecologists [3].

Currently the Association of American Medical Colleges has estimated that the number of personal physicians in

the United States will not meet the demand, creating a shortage of 21,000 physicians by 2015. This shortfall is due to the increased aging population and a decline in the number of medical students choosing to focus on primary care [4].

Preventable Hospitalizations

Preventable hospitalizations are those for which good outpatient care could potentially have prevented the need for hospitalization. Some of these conditions include asthma in adults, bacterial pneumonia, congestive heart failure and chronic obstructive pulmonary disease. Such hospitalizations reflect a community's tendency to overuse the hospital as a place for primary care [5].

Strong outpatient care systems can decrease the number of preventable hospitalizations, as they can treat patients before a hospitalization becomes necessary [5].

In 2011, West Virginia had 100.7 preventable hospitalizations per 1,000 Medicare enrollees. This was a decrease from the 121 preventable hospitalizations per 1,000 Medicare enrollees in 2002. West Virginia currently ranks 49th in the nation. The national rate of preventable hospitalizations has decreased from 80.7 in 2002 to 68.2 in 2011 [5].

Although preventable hospitalizations have decreased in both West Virginia and the United States, West Virginia's rates remain higher than national rates [5].

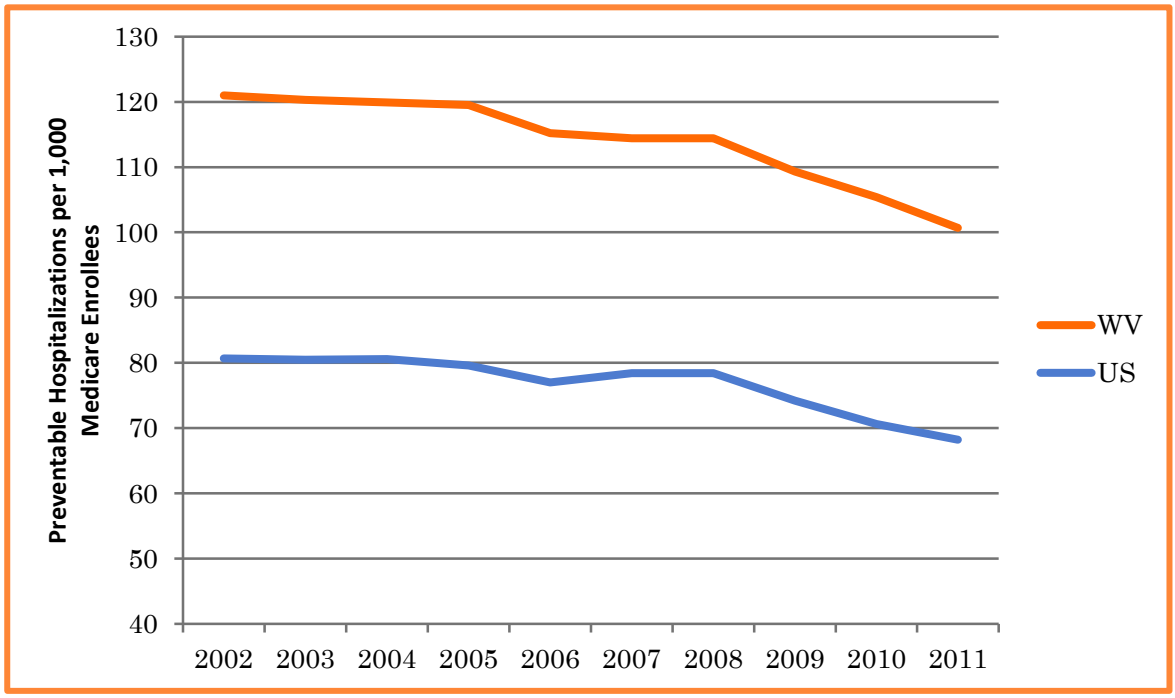

Figure 33. Preventable hospital stay rates, 2002 to 2011
Source: Dartmouth Atlas, America's Health Rankings

Healthcare Access & Quality

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Mortality

Death Rate

West Virginia's crude death rate was 11.8 per 1,000 population in 2009 and the average age at death was 72.1 years (68.7 for men and 75.5 for women). The overall number of resident deaths in 2009 was 21,385, a decrease of 166 from 2008 [1].

Nationally in 2009, the death rate was 741.1 deaths per 100,000 population and the average age at death was 78.5 years [2].

Although West Virginians' average age at death was 72.1, 133 residents were 100 or more when they died. The oldest man was 107 and the oldest woman was 108 at the time of death [1].

The leading causes of death in 2009 were heart disease, cancer and chronic lower respiratory disease, accounting for 53.3 percent of West Virginian's deaths.

Among those aged 1 to 44, however, accidents remain the leading cause of death, including both motor vehicle accidents and other unintentional injuries [1]. Additional information about West Virginia's leading causes of death is located in this report's Demographics section.

Motor Vehicle Accidents

Nationwide, 10.8 million motor vehicle accidents took place in 2009 and of those accidents, 35,900

Characteristic	Number	Percent	Characteristic	Number	Percent
Gender			Race		
Male	10,744	50.2%	White or Caucasian	20,683	96.7%
Female	10,641	49.8%	Black or African American	644	3%
Age at Death			All Other Races	58	0.3%
Less than 1	167	0.8%	Leading Causes of Death		
1 to 4	29	0.1%	Heart Disease	5,097	23.8%
5 to 14	37	0.2%	Cancer	4,792	22.4%
15 to 19	79	0.4%	Chronic Lower Respiratory Disease	1,519	7.1%
20 to 24	132	0.6%	Accidents	1,150	5.4%
25 to 34	393	1.8%	Cerebrovascular Disease	1,093	5.1%
35 to 44	677	3.2%	Diabetes	757	3.5%
45 to 54	1,638	7.7%	Dementia	735	3.4%
55 to 64	2,831	13.2%	Alzheimer's Disease	558	2.6%
65 to 74	3,998	18.7%	Nephritis, Nephrotic Syndrome, and Nephrosis	476	2.2%
75 to 84	5,710	26.7%	Influenza and Pneumonia	401	1.9%
85 and older	5,694	26.6%	All Other Causes	4,807	22.5%

Table 20. Summary totals, West Virginia resident deaths 2009
Source: West Virginia Bureau for Public Health, Health Statistics Center (2012) WV Vital Statistics, 2009

Mortality

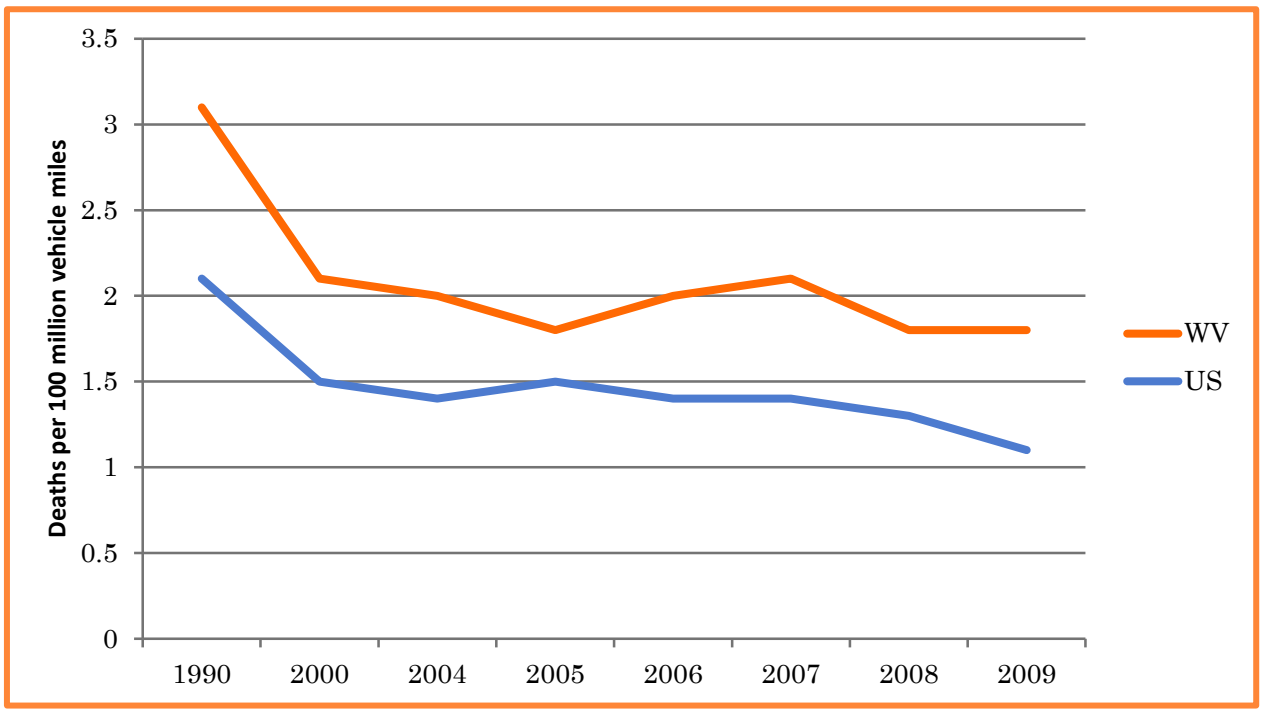

Figure 34. Motor vehicle death rates per 100 million vehicle miles traveled, 1990 to 2009
Source: United States Census Bureau, 2012 Statistical Abstract

resulted in a death, for a motor vehicle death rate of 11 deaths per 100,000 population and 1.1 deaths per 100 million vehicle miles traveled [3].

In West Virginia, 356 residents died as a result of a motor vehicle accident in 2009, a decrease of 125 deaths from 1990 (when West Virginia had 481 deaths due to motor vehicles). The state's death rate in 2009 was 1.8 deaths per 100 million vehicle miles traveled, a decrease from 3.1 deaths per 100 million miles traveled in 1990 [3].

Additionally in 2009, motor vehicle fatalities in West Virginia included three children under five years old, two fewer than in 2008 [1].

Although the number of motor vehicle deaths continues to decline in West Virginia, the death rate from motor vehicle accidents continues to be higher than the national rate and remains the single leading cause of death for young adults aged 15 to 24, accounting for 39.3 percent of all deaths for this age group in 2009 [1].

Unintentional Injuries

In 2009, unintentional injury was the fifth leading cause of death in the United States,

Mechanism of Unintentional Injury	Total
Cut/Pierce	113
Fall	4,076
Fire/Burn	37
Firearms	25
Machinery	57
Motor Vehicle Traffic	1,128
Pedal Cyclist	14
Transport	378
Bites and Stings	140
Other Environmental	59
Overexertion	117
Poisoning	433
Struck by/Against	249
Suffocation	21
Other	220

Table 21. Incidence of hospital-admitted injuries, West Virginia residents, 2003
Source: West Virginia University Injury Control Research Center

Mortality

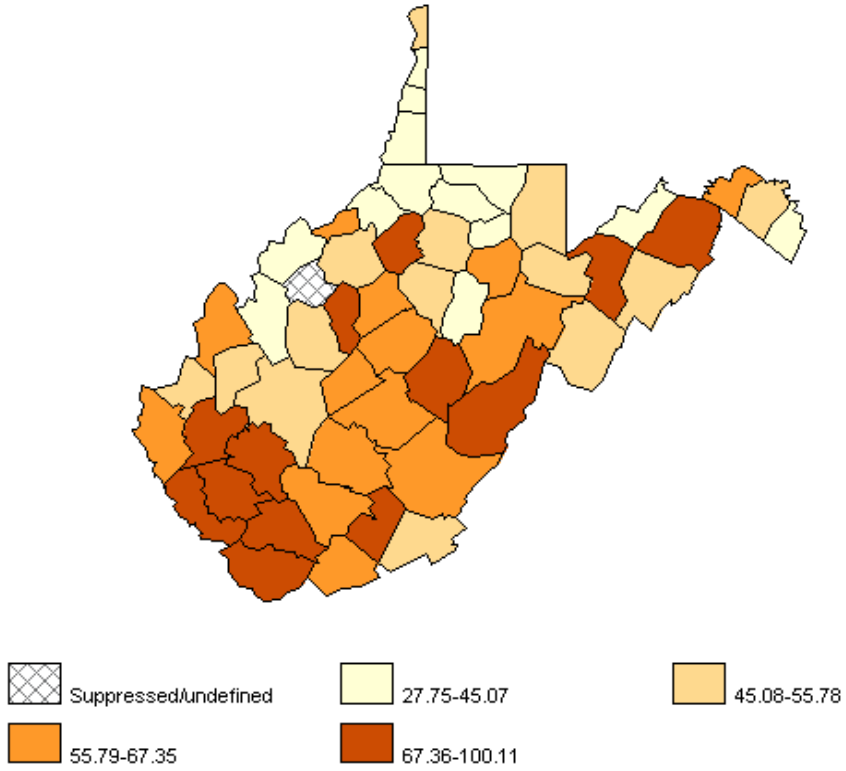

Figure 35. Unintentional injury death rates per 100,000 population, 2000-2006
Source: Centers for Disease Control & Prevention, WISQARS

accounting for 38.4 deaths per 100,000 population and a total of 118,021 deaths. Causes of unintentional injury vary greatly, but include falls (8.1 deaths per 100,000 population), motor vehicle accidents (11.2 deaths per 100,000 population) and unintentional poisoning (10.3 deaths per 100,000 population) [5].

The most current West Virginia data from 2003 report 7,352 unintentional injuries requiring hospital admission. Of those, falls accounted for 4,076 injuries, motor vehicle accidents resulted in 1,128, poisoning caused 433, being struck by or against something accounted for 249 and overexertion injured 117 others (Table 21) [4].

In addition to the loss of life caused by unintentional injuries, there is also a significant financial cost. In 2005, 117,809 Americans died from injuries in the United States. Each death costs an average of $11,670 in medical expenses and $890,723 in lost working time. In West Virginia in 2005, 940 residents died from unintentional injuries and the state's cost averaged $11,260 in medical expenses and $901,857 in lost working time [6].

Poisoning

Eighty-seven people die each day in the United States as a result of unintentional poisoning and another 2,277 poisoning victims are treated in emergency departments. Poisoning can be intentional or unintentional and involves ingesting, inhaling, or absorbing any substance that is harmful to the body if too much is consumed.

Unintentional poisoning includes using drugs or chemicals for nonmedical purposes in large amounts, such as an "overdose." It also includes excessive use of drugs or chemicals for a non-recreational purpose, such as a child ingesting these substances [7].

Mortality

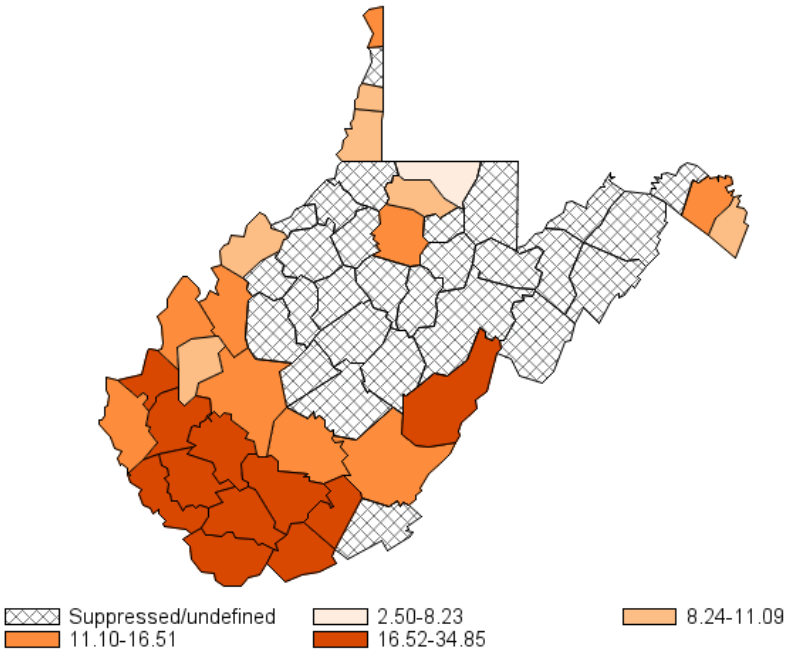

Figure 36. Poisoning death rates per 100,000 population, 2000-2006
Source: Centers for Disease Control & Prevention, WISQARS

Poisoning is the leading cause of death from injuries in the United States and 9 out of 10 poisoning deaths are caused by drugs. Following the national trend, poisoning is the leading cause of injury deaths in 30 of the nation's 50 states, including West Virginia [8].

In fact, in 2007, West Virginia had the highest drug overdose death rate in the nation, at 21.1 deaths per 100,000 population. This rate was significantly higher than the national rate of 13.4 deaths per 100,000 population and nearly seven times the lowest drug overdose death rate (South Dakota's 3.1 deaths per 100,000 population) [9].

West Virginia's high unintentional poisoning rate rose throughout the 2000 decade until 2009, when it decreased from 444 poisoning deaths in 2008 to 394 in 2009. Overall in 2009, accidental poisoning accounted for nearly a fourth of all deaths in the 25-34 age group and the majority of these deaths were caused by ingestion of both legal and illicit prescription pharmaceuticals [1].

In 2011, the West Virginia Poison Center received 19,280 calls related to poison exposure. More than 60

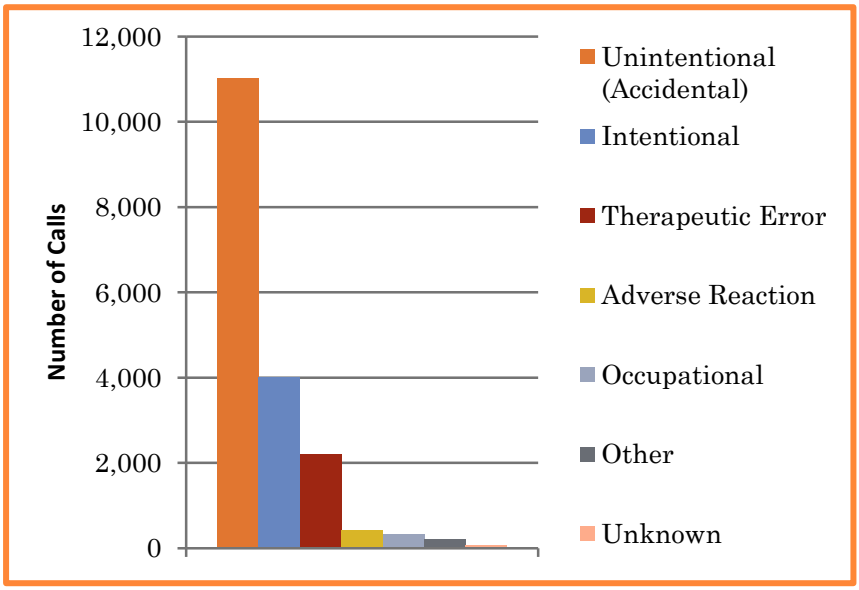

Figure 37. Reason for calling poison control regarding exposure to poisonous substance, 2011
Source: West Virginia Poison Center

percent of those calls (11,032) were related to unintentional exposure. Sixty-eight percent of all calls to the poison center were made from a personal residence and 60 percent of calls were treatable at home. Of all the poisoning-related calls received, 9,409 were sub-toxic and not followed. Of those followed, 28 residents died, 92 had a major effect, 476 had an unrelated effect, 1,387 had an unknown, but potentially toxic effect and the remaining 6,923 saw a moderate, mild or no effect [10].

The leading drug-related poisoning calls dealt with exposure to pain medications, sedatives or antipsychotics, heart drugs, antidepressants and antihistamines. The major non-drug-related exposures came from cosmetics, personal care products and household cleaners [10].

Homicide

West Virginia had 99 homicides in 2009, an increase of 29 percent from 2008. Seventy-one homicide victims in 2009 were male (28 were female), and the average age at death was 40.7. Two of the homicide victims were under the age of five [1].

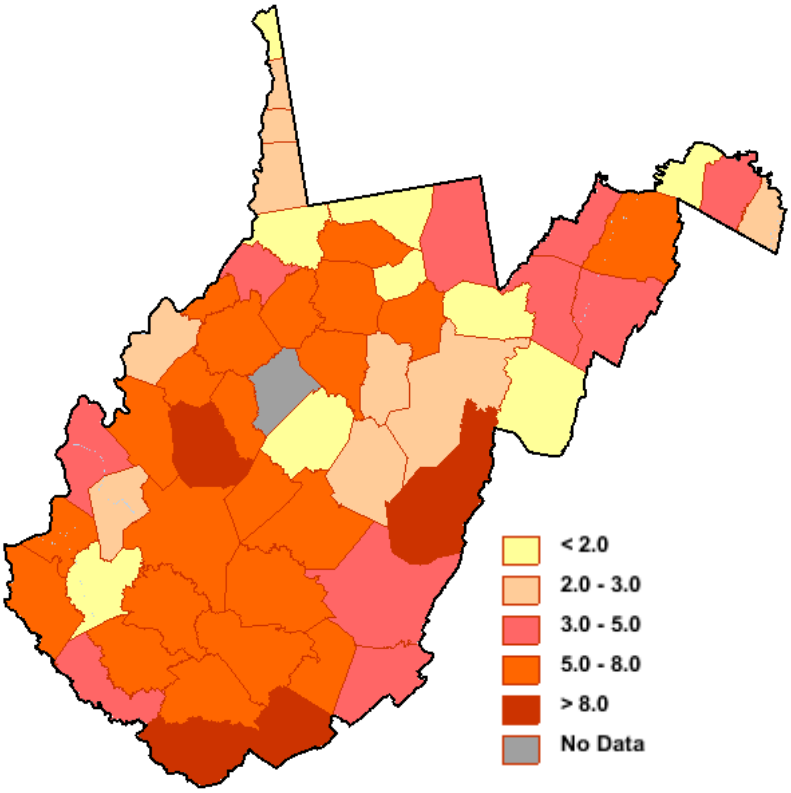

Figure 38. Homicide death rate per 100,000 population, 2001-2007
Source: County Health Rankings 2011

Firearms were responsible for more than one half (57.6 percent) of West Virginia homicides in 2009 [1].

The state's age-adjusted homicide rate for the years 2007-2009 was 4.7 per 100,000 population, and the homicide rate for adults 18 and older was 5.5 homicide deaths per 100,000 population [11].

Overall, these rates are lower than the 2007-2009 national homicide rate of 5.8 per 100,000 population, as well as the rate for adults 18 and older (7 per 100,000 population) [11]. The exception to this rule is older residents in West Virginia, ages 55 to 64 suffer nearly the same homicide rate as the rest of the nation, while those age 65 and older have a higher rate of death by

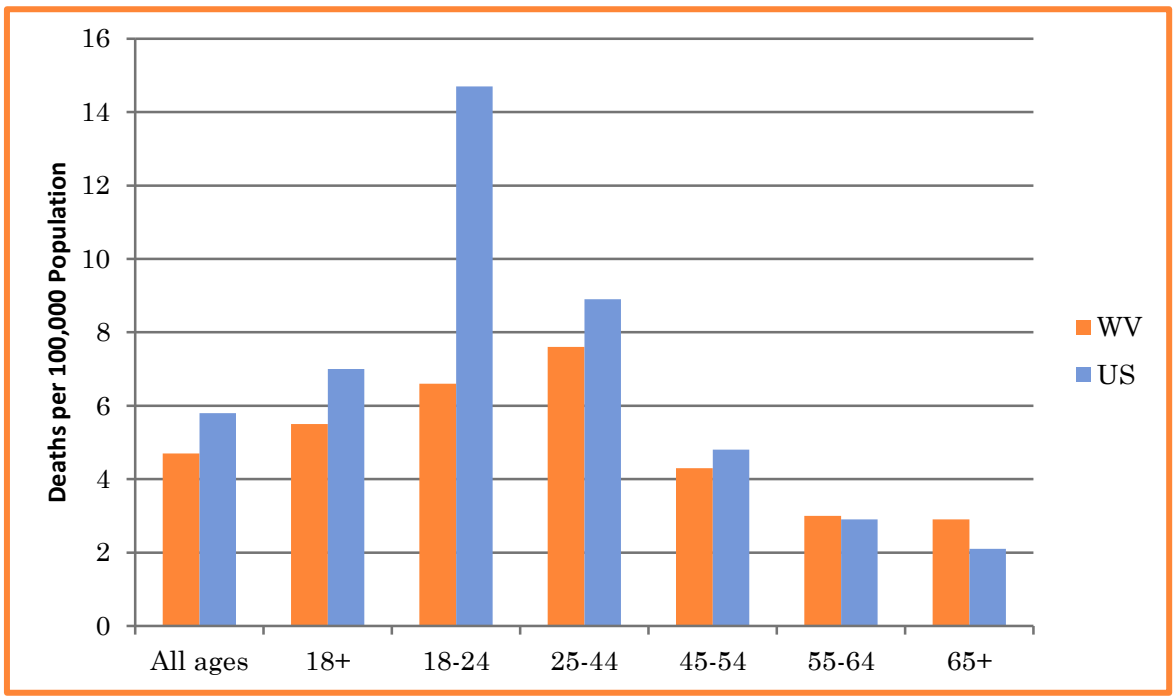

Figure 39. Homicide death rate per 100,000 population, by age, 2007-2009
Source: CDC Health Data Interactive

homicide than the national rate (Figure 39).

Homicide death rates were much higher for West Virginia males of all ages than females in 2007-2009, as 6.4 males per 100,000 population died as a result of a homicide, while only 3 women per 100,000 population died by homicide. This difference between males and females echoes national rates, as only 2.5 women per 100,000 population in the United States die from homicide, compared to 9.1 men per 100,000 population [11].

Although West Virginia's homicide rates are lower than national rates, some counties in the state have significantly higher rates, including McDowell, Mercer, Pocahontas and Roane, all of which have rates higher than 8 homicides per 100,000 population (Figure 38).

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Mental Health

Mental Health Last 30 Days

Poor mental health days are defined as the average number of days in the past 30 that a person could not perform household tasks or other work because of mental illness. This statistic highlights the fact that good health outcomes are much more difficult to attain when mental health problems prevent an individual from accomplishing everyday tasks [1].

In 2010, West Virginians reported the highest average of poor mental health days in the nation, at 4.5 poor mental health days out of the previous 30. This means that 15 percent of the time West Virginians are not able to function in their daily lives due to poor mental health [1]. The national average is 3.5 poor mental health days in the previous 30 days [1].

Within West Virginia, the range of poor mental health days in the years 2004-2010 ranged from 1.6 in Pendleton County to 7.6 in Wyoming County, demonstrating a wide variation in perceived mental health and ability to complete everyday activities throughout the state [2].

Geographic Area	Sample Size	Poor Mental Health Days	Geographic Area	Sample Size	Poor Mental Health Days
West Virginia	28,141	4.5	**Mercer**	884	4.6
Barbour	256	3.9	**Mineral**	404	3.7
Berkeley	1,273	4.1	**Mingo**	519	7.1
Boone	422	6	**Monongalia**	1,046	4.1
Braxton	270	3.9	**Monroe**	248	5
Brooke	385	3.6	**Morgan**	314	4.6
Cabell	1,237	4.7	**Nicholas**	470	5
Calhoun	137	4.3	**Ohio**	702	4
Clay	166	3.9	**Pendleton**	142	1.6
Doddridge	139	5	**Pleasants**	122	4.1
Fayette	712	5.2	**Pocahontas**	187	4
Gilmer	132	5.3	**Preston**	527	4.3
Grant	189	5.7	**Putnam**	832	3.5
Greenbrier	630	4.5	**Raleigh**	993	4.9
Hampshire	352	3.7	**Randolph**	411	4.1
Hancock	456	4.3	**Ritchie**	165	3.4
Hardy	220	3.7	**Roane**	283	4.2
Harrison	1,050	4.2	**Summers**	231	4.3
Jackson	494	4.1	**Taylor**	248	3.8
Jefferson	656	2.9	**Tucker**	129	3.4
Kanawha	3,253	4.4	**Tyler**	123	2.7
Lewis	285	5.4	**Upshur**	390	4.3
Lincoln	372	5	**Wayne**	656	6.1
Logan	638	6.4	**Webster**	158	4.3
Marion	906	3.7	**Wetzel**	252	3.6
Marshall	482	4.2	**Wirt**	95	2.4
Mason	426	3.8	**Wood**	1,356	4.9
McDowell	375	5.6	**Wyoming**	341	7.6

Table 22. Number of poor mental health days in past 30, West Virginia counties, 2004-1010
Source: County Health Rankings and Roadmaps

Depression

Depression is a treatable mental disorder which affects an estimated 6.6 percent of the U.S. adult population every year (this percentage includes persons with chronic conditions or unhealthy behaviors) [3].

In any two-week period from 2007-2010, eight percent of non-institutionalized persons 12 years of age and older suffered from depression in the United States. On average, 7.9 million Americans visit a

Mental Health

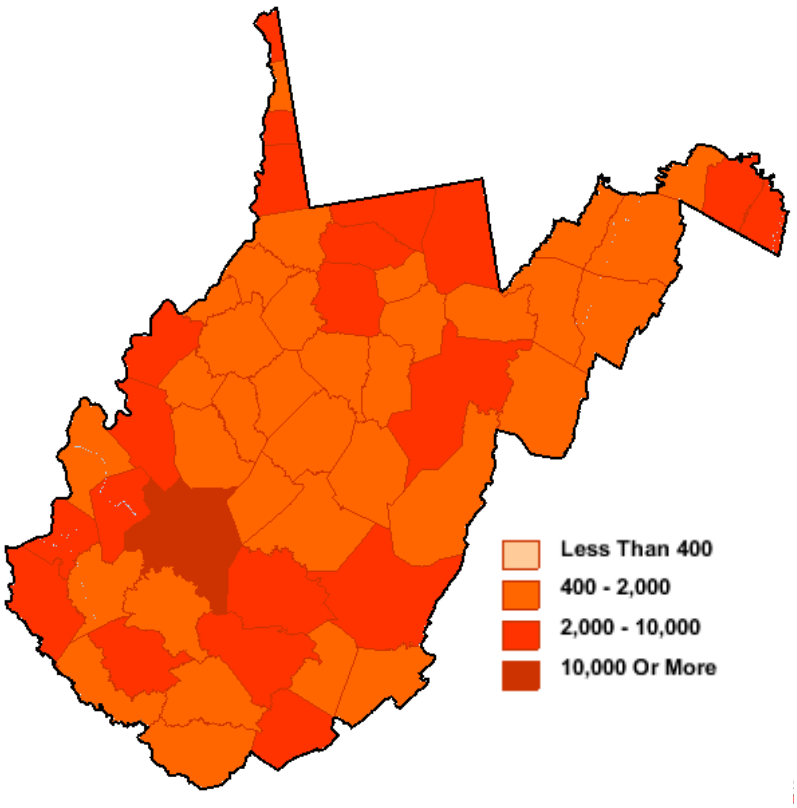

Figure 40. Population over age 18 experiencing major depression, 2006-2007
Source: Community Health Status Indicators 2009

physician's office, hospital, or emergency room with major depressive disorder as the primary diagnosis. On average, these individuals stay in the hospital 6.8 days [4].

In 2007, Thomson Health ranked West Virginia as the state with the 49th worst percentage of residents suffering from depression [5].

In 2010, West Virginia had one of the highest rates of age-standardized major depression in the United States, at 5.3 percent. West Virginia was also among the leading states in estimates of "other depression," trailing only Mississippi with its rate of 9 percent. Overall, 14.3 percent of West Virginians suffered from some type of depression in 2010 [3].

As shown in Figure 40, several counties in West Virginia are home to more than 2,000 residents suffering from depression and one county, Kanawha, is home to more than 10,000 residents suffering from depression.

Such a high prevalence of depression in West Virginia is important to note because depression can lead to chronic diseases, lower quality of life, and even suicide [3].

Suicide

Suicide is a serious public health problem with complex causes and multiple determining factors. In 2010, suicide was the tenth leading cause of death for all ages in the United States and there were 38,364 suicides during the year, for an average of 105 each day. Each year, suicide results in an estimated $34.6 billion in medical and work loss costs [6,7].

In 2007, Thomson Healthcare ranked West Virginia's suicide rate of 15.4 deaths per 100,000 population the 41st worst state suicide rate in the nation, highlighting the

state's high number of suicides [5].

West Virginia saw 288 suicides in 2009. Males accounted for 235 of these, while only 53 females were victims of suicide. Nearly two-thirds of these deaths were firearm related (71.9 percent of male suicides and 39.6 percent of female suicides) [8].

The average age of death for a suicide victim in 2009 was 46.7 and suicide was the 12th leading cause of death overall. Among the population aged 15-34, however, suicide was the leading cause of death and there were 12 suicides among persons aged 19 and under [8].

As seen in Figure 41, suicide death rates varied by county, although the majority of the state had fewer than 20 suicides per 100,000 population in 2005, 17 counties had between 20 and 50 suicides per 100,000, and one county, Gilmer, had 50 or more suicides per 100,000 population [9].

Emotional Support & Life Satisfaction

It is important for individuals to feel emotionally supported, especially when dealing with difficult issues. In 2010, 82.3 percent of West Virginians reported they "always" or "usually" received the social and emotional support they needed, a higher rate than the 80.5 percent reported by United States residents. West Virginia ranked 23rd highest among all BRFSS participants in 2010 [10].

Gender did not significantly impact the amount of emotional or social support an individual received, as 82 percent of men and 82.7 percent of women reported receiving adequate support. Also, the presence of support did not vary by age. However, the prevalence of emotional and social support was highest

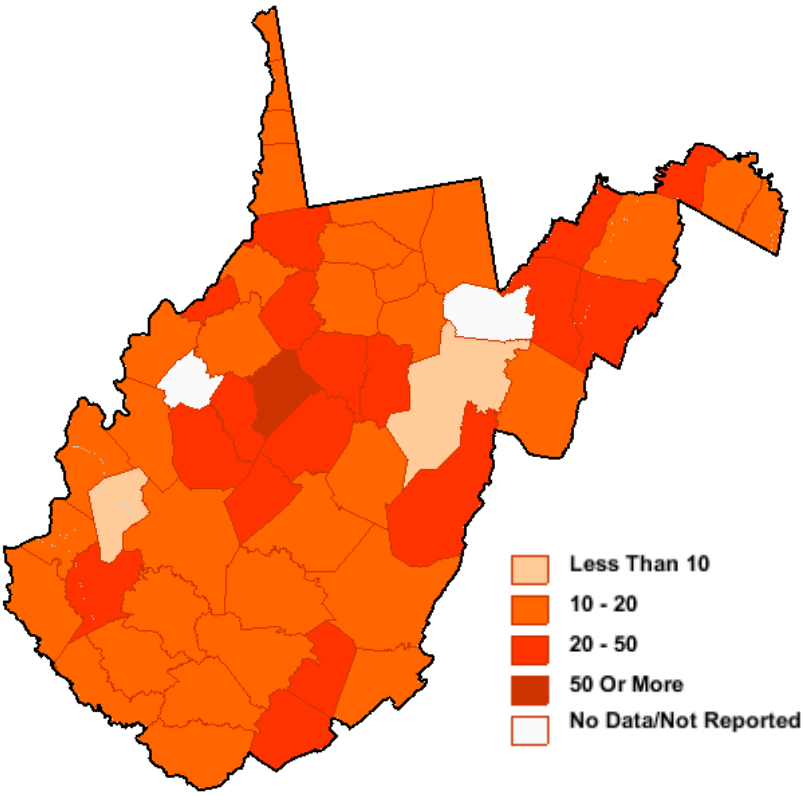

Figure 41. Deaths per 100,000 population due to suicide, 2005
Source: Community Health Status Indicators 2009

Geographic Area	Sample Size	No Social/Emotional Support	Geographic Area	Sample Size	No Social/Emotional Support
West Virginia	24,551	19%	**Mercer**	777	20%
Barbour	228	21%	**Mineral**	375	16%
Berkeley	1,117	20%	**Mingo**	453	24%
Boone	371	17%	**Monongalia**	912	18%
Braxton	247	16%	**Monroe**	224	24%
Brooke	339	17%	**Morgan**	281	21%
Cabell	1,069	20%	**Nicholas**	418	23%
Calhoun	126	22%	**Ohio**	631	16%
Clay	NA	NA	**Pendleton**	119	24%
Doddridge	128	17%	**Pleasants**	106	22%
Fayette	612	18%	**Pocahontas**	160	16%
Gilmer	115	20%	**Preston**	459	20%
Grant	163	19%	**Putnam**	723	15%
Greenbrier	560	19%	**Raleigh**	848	21%
Hampshire	306	16%	**Randolph**	357	25%
Hancock	401	19%	**Ritchie**	143	26%
Hardy	198	24%	**Roane**	250	20%
Harrison	919	17%	**Summers**	199	23%
Jackson	450	15%	**Taylor**	220	16%
Jefferson	576	16%	**Tucker**	111	14%
Kanawha	2,824	20%	**Tyler**	114	12%
Lewis	260	21%	**Upshur**	337	19%
Lincoln	323	22%	**Wayne**	575	26%
Logan	564	24%	**Webster**	143	16%
Marion	789	18%	**Wetzel**	222	18%
Marshall	423	14%	**Wirt**	84	15%
Mason	381	27%	**Wood**	1,192	18%
McDowell	322	26%	**Wyoming**	307	24%

Table 23. Lack of social/emotional support, West Virginia counties, 2006-1010
Source: County Health Rankings and Roadmaps

among those with higher education levels and greater incomes [10].

Regardless of the emotional or social support experienced, 93.9 percent of West Virginians reported being "satisfied" or "very satisfied" with their lives. This percentage is below the national percentage of 94.6 and ranks West Virginia 9th lowest among all BRFSS participants in 2010 [10].

Women were slightly more satisfied then men, at 94.5 percent compared to 93.2 percent, and life satisfaction did not very significantly by age.

However, adults with a college degree had a significantly higher prevalence of life satisfaction than those with less than a high school education, and those who earned $75,000 or more per year reported greater satisfaction than those earning less than $25,000 [10].

Mental Health

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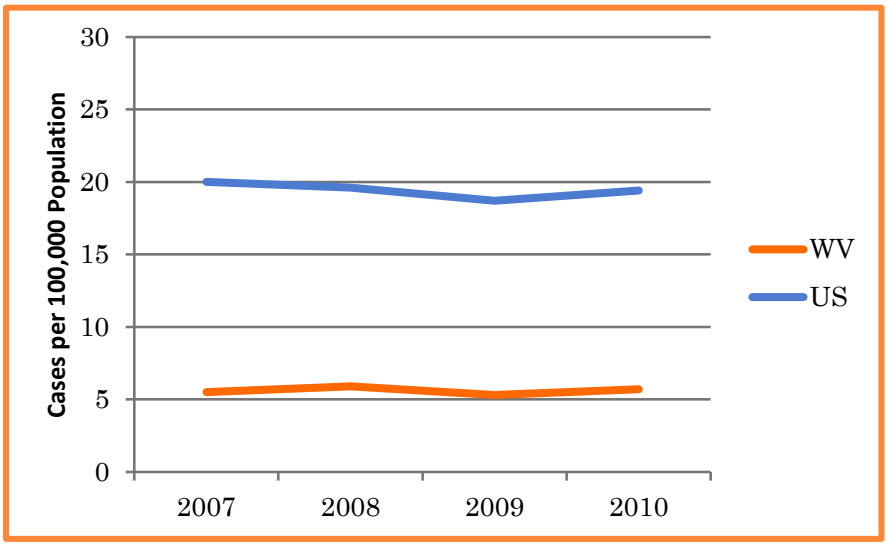

Figure 41. HIV incidence rate (per 100,000)
Source: CDC NCHHSTP Atlas

HIV/AIDS

HIV is the human immunodeficiency virus. It is the virus that can lead to acquired immune deficiency syndrome, or AIDS. AIDS is the late stage of HIV infection, when a person's immune system is severely damaged and has difficulty fighting diseases and certain cancers [1].

West Virginia's HIV incidence rate slightly increased from 5.5 cases per 100,000 population in 2007 to 5.7 cases per 100,000 population in 2010, but was consistently lower than the HIV incidence rate for the United States during that time period [2].

There was also a gender difference in the HIV incidence rate in West Virginia and the United States in 2010. In West Virginia, the rate for males was 10.1 per 100,000 population, while the rate for females was 1.5. In the United States, the rate for males was 31.4 per 100,000 population, while the rate for females was 8. Furthermore, in 2010, the HIV incidence rate was highest among 25-34 year olds (12.9 for West Virginia and 32.2 for the United States) and blacks (41 for West Virginia and 76.6 for the United States) [2].

West Virginia's HIV mortality rate stayed consistent from 3 cases per 100,000 population in 2007 to 3 cases per 100,000 population in 2009, and was consistently lower than the HIV mortality rate

Figure 42. HIV mortality rate (per 100,000)
Source: CDC NCHHSTP Atlas

for the United States during that time period [2].

West Virginia's AIDS incidence rate was relatively unchanged from 4.6 cases per 100,000 population in 2006 to 4.5 cases per 100,000 population in 2010, and was consistently lower than the AIDS incidence rate for the United States during that time period [2].

There was also a gender difference in the AIDS incidence rate in West Virginia and the United States in 2010. In West Virginia, the rate for males was 7.7 per 100,000 population, while the rate for females was 1.5. In the United States, the rate for males was 19.9 per 100,000 population, while the rate for females was 6.3. Furthermore, in 2010, the AIDS incidence rate was highest among 35-44 year olds (8.4 for West Virginia and 23.2 for the United States) and blacks (41.9 for West Virginia and 53.3 for the United States). Incidentally, the rate in West Virginia for 45-54 year olds was the same as for 35-44 year olds [2].

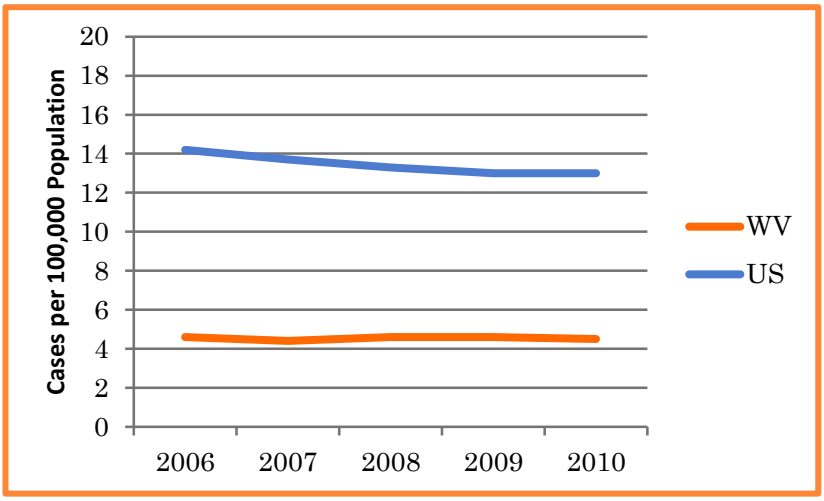

Figure 43. AIDS incidence rate (per 100,000)
Source: CDC NCHHSTP Atlas

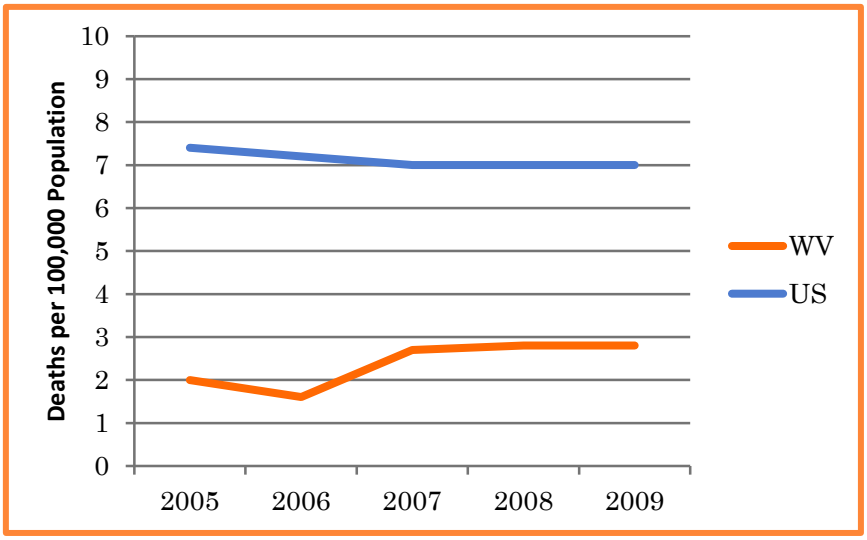

Figure 44. AIDS mortality rate (per 100,000)
Source: CDC NCHHSTP Atlas

West Virginia's AIDS mortality rate increased from 2.0 cases per 100,000 population in 2005 to 2.8 cases per 100,000 population in 2009, but was consistently lower than the AIDS mortality rate for the United States during that time period [2].

Tuberculosis

Tuberculosis (TB) is caused by a bacterium called *Mycobacterium tuberculosis*. The bacteria usually attack the lungs, but TB bacteria can attack any part of the

body such as the kidney, spine, and brain. If not treated properly, TB can be fatal. Not everyone infected with TB becomes sick. As a result, two TB-related conditions exist: latent TB infection and TB disease. In most people who breathe in TB bacteria and become infected, the body is able to fight the bacteria to stop it from growing, which is called latent TB infection. TB bacteria become active if the immune system can't stop it from growing, which is called TB disease [3].

West Virginia's TB incidence rate declined from 1.2 cases per 100,000 population in 2006 to 0.8 cases per 100,000 population in 2010, and was consistently lower than the TB rate for the United States during that time period [2].

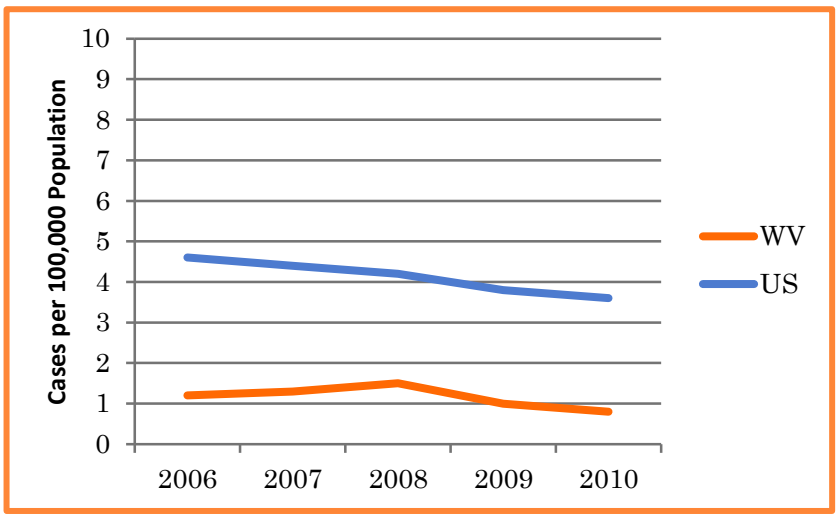

Figure 45. Tuberculosis incidence rate (per 100,000)
Source: CDC NCHHSTP Atlas

Sexually Transmitted Diseases

Chlamydia

Chlamydia is a common sexually transmitted disease (STD) caused by the bacterium, *Chlamydia trachomatis*, which can damage a woman's reproductive organs. Even though symptoms of chlamydia are usually mild or absent, complications of the disease can cause irreversible damage, including infertility. Chlamydia is the most frequently reported bacterial sexually transmitted disease in the United States [4].

West Virginia's chlamydia incidence rate increased from 192.1 cases per 100,000 population in 2006 to 255.7 cases per 100,000 population in 2010, but was consistently lower than the chlamydia rate for the United States

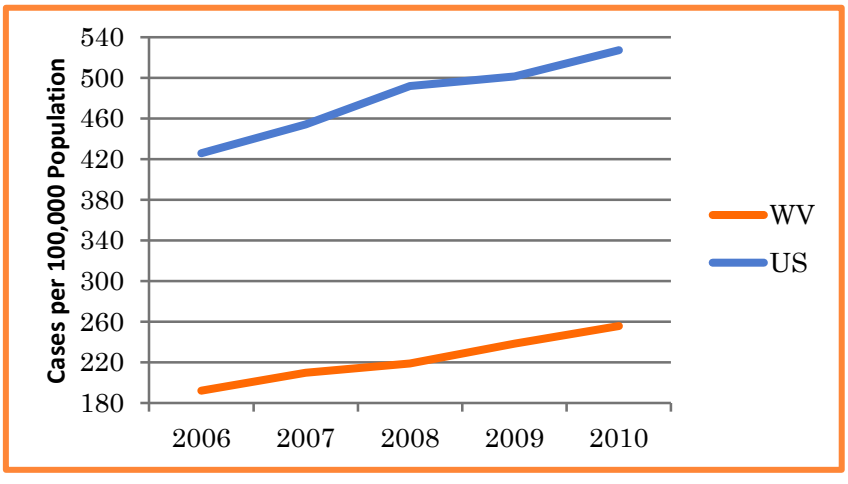

Figure 46. Chlamydia incidence rate (per 100,000)
Source: CDC NCHHSTP Atlas

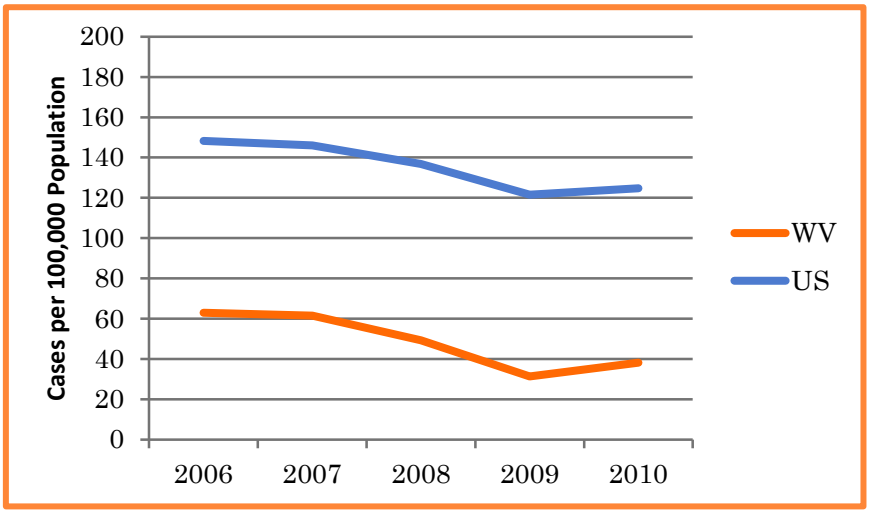

Figure 47. Gonorrhea incidence rate (per 100,000)
Source: CDC NCHHSTP Atlas

during that time period [2].

Gonorrhea

Gonorrhea is a sexually transmitted disease (STD) caused by a bacterium. Untreated, gonorrhea can cause serious and permanent health problems in both women and men. Gonorrhea is a very common infectious disease [5].

West Virginia's gonorrhea incidence rate decreased from 62.9 cases per 100,000 population in 2006 to 38.2 cases per 100,000 population in 2010, and was consistently lower than the gonorrhea rate for the United States during that time period [2].

Syphilis

Syphilis is a sexually transmitted disease (STD) caused by a bacterium. The appearance of a single sore marks the first (primary) stage of syphilis symptoms, but there may be multiple sores. Skin rashes and/or sores in the mouth, vagina, or anus mark the secondary stage of symptoms. Syphilis can cause long-term complications and/or death if not adequately treated [6].

West Virginia's syphilis incidence rate decreased from 0.7 cases per 100,000 population in 2006 to 0.4 cases per 100,000 population in 2010, and was consistently lower than the syphilis rate for the United States during that time period [2].

Viral Hepatitis B & C

Hepatitis B is caused by infection with the Hepatitis B virus (HBV). The incubation period

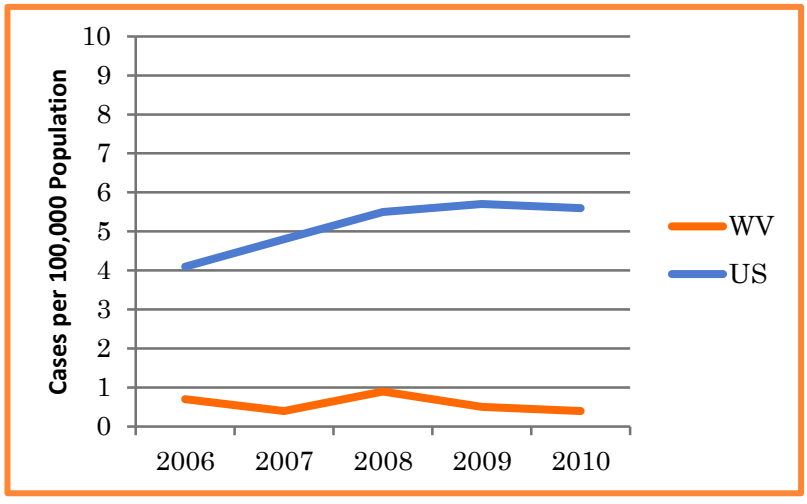

Figure 48. Primary and secondary syphilis incidence rate (per 100,000)
Source: CDC NCHHSTP Atlas

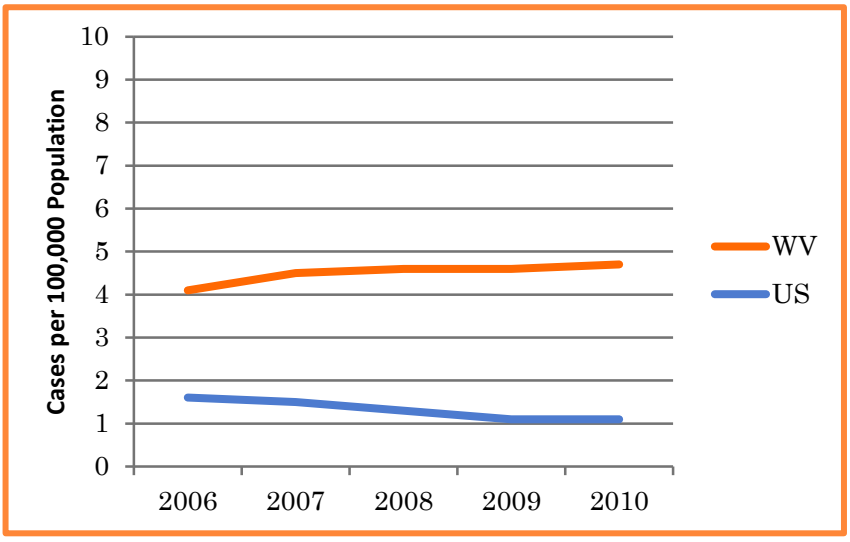

Figure 49. Viral Hepatitis B incidence rate (per 100,000)
Source: CDC Viral Hepatitis Statistics & Surveillance

from the time of exposure to onset of symptoms is 6 weeks to 6 months. HBV is found in highest concentrations in blood and in lower concentrations in other body fluids (e.g., semen, vaginal secretions and wound exudates). HBV infection can be self-limited or chronic. The primary risk factors that have been associated with infection are unprotected sex with an infected partner, birth by an infected mother, unprotected sex with more than one partner, men who have sex with other men, history of other STDs and illegal injection drug use [7].

West Virginia's HBV incidence rate slightly increased from 4.1 cases per 100,000 population in 2006 to 4.7 cases per 100,000 population in 2010, and was consistently higher than the HBV rate for the United States during that time period [8].

Hepatitis C virus (HCV) infection is the most common chronic bloodborne infection in the United States; approximately 3.2 million persons are chronically infected. Although HCV is not efficiently transmitted sexually, persons at risk for infection through injection drug use might seek care in STD treatment facilities, HIV counseling and testing facilities, correctional facilities, drug treatment facilities and other public health settings where STD and HIV prevention and control services are available. HCV is most

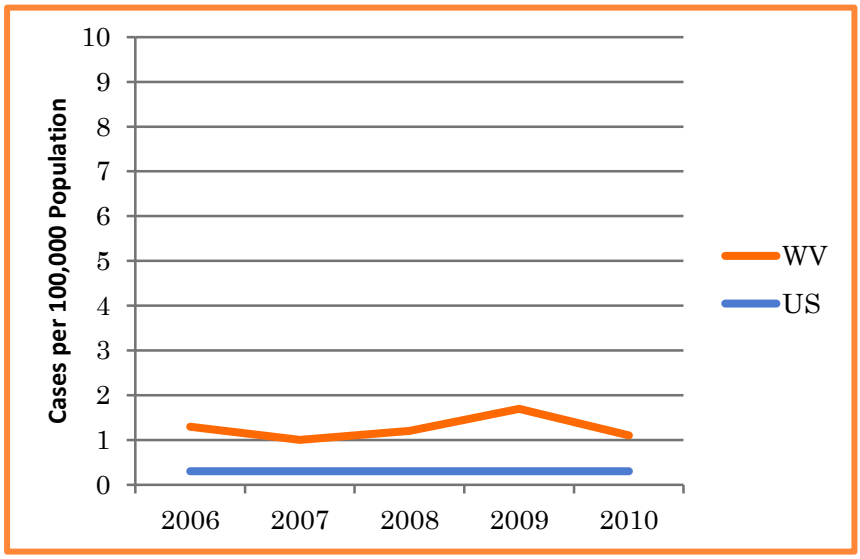

Figure 50. Viral Hepatitis B incidence rate (per 100,000)
Source: CDC Viral Hepatitis Statistics & Surveillance

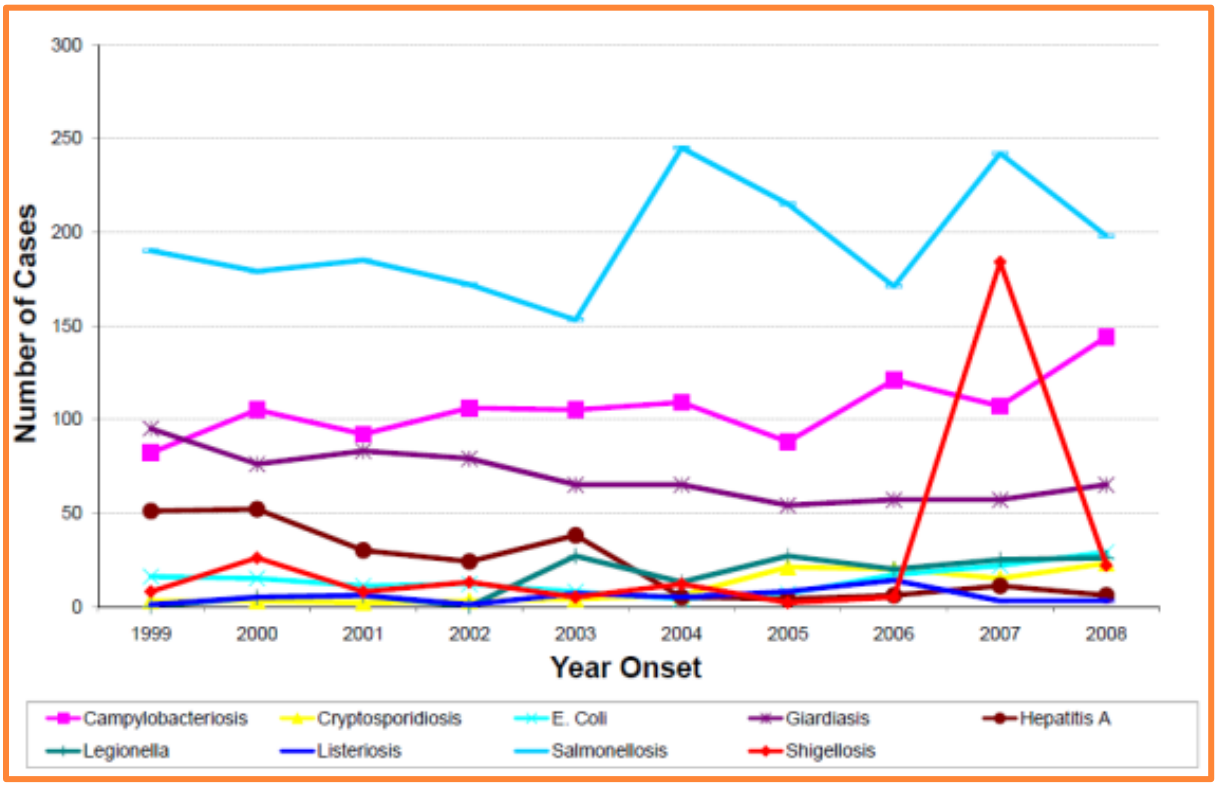

Figure 51. Reported cases of food & waterborne diseases by year of onset, West Virginia, 1999-2008
Source: West Virginia Division of Infectious Disease Epidemiology

efficiently transmitted through large or repeated percutaneous exposure to infected blood (e.g., through transfusion of blood from unscreened donors or through use of injecting drugs). Although much less frequent, occupational, perinatal and sexual exposures also can result in transmission of HCV [9].

West Virginia's HCV incidence rate slightly decreased from 1.3 cases per 100,000 population in 2006 to 1.1 cases per 100,000 population in 2010, and was consistently higher than the HCV rate for the United States during that time period [8].

Foodborne Illness

Foodborne illness is a common, costly—yet preventable—public health problem. Each year roughly 1 in 6 Americans (or 48 million people) gets sick, 128,000 are hospitalized and 3,000 die of foodborne diseases [10]. Reducing foodborne illness by just 10 percent would keep 5 million Americans from getting sick each year. Preventing a single fatal case of *E. coli* O157 infection would save an estimated $7 million. Thus, CDC has identified reducing foodborne diseases as a winnable battle [11].

Many different disease-causing microbes, or pathogens, can contaminate foods, so there are many different foodborne infections. In addition, poisonous chemicals, or other harmful substances, can

Communicable Diseases

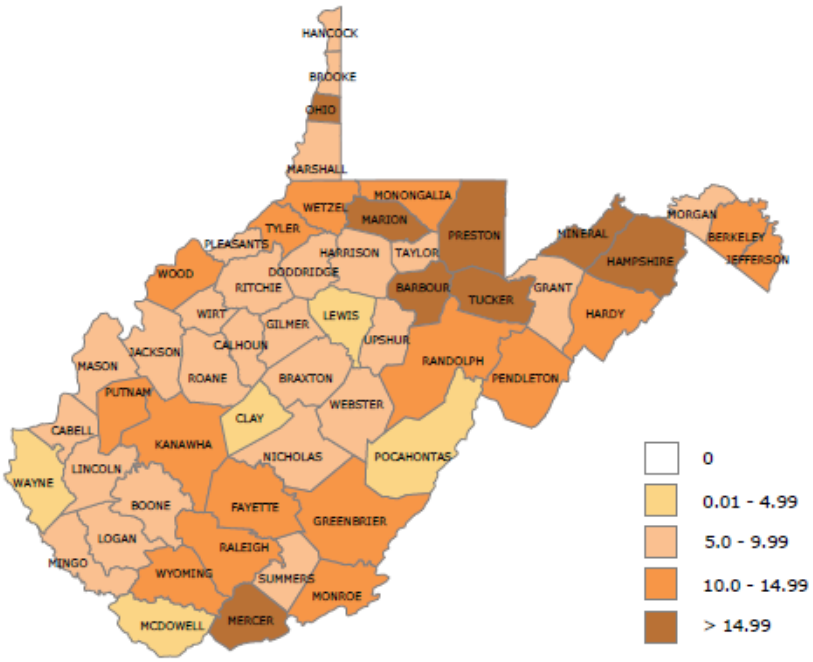

Figure 52. Average yearly incidence of Salmonellosis per 100,000 population, West Virginia, 1999-2008
Source: West Virginia Division of Infectious Disease Epidemiology

cause foodborne diseases if they are present in food. Eight known pathogens account for the vast majority of illnesses, hospitalizations and deaths: Salmonella, Norovirus, Clostridium, Campylobacter, Staphylococcus, Toxoplasma, E. Coli and Listeria [10].

In West Virginia, Salmonella, Campylobacter and Giardia caused the most cases of reported food and waterborne diseases in the state from 1999-2008 [12].

Influenza

The flu is a contagious respiratory illness caused by influenza viruses that infect the nose, throat and lungs. It can cause mild to severe illness, and at times can lead to death. The best way to prevent the flu is by getting a flu vaccine each year [13].

Most people who get the flu will have mild illness, will not need medical care or antiviral drugs and will recover in less than two weeks. Some people, however, are more likely to get flu complications that result in being hospitalized and occasionally result in death. Pneumonia, bronchitis, sinus infections and ear

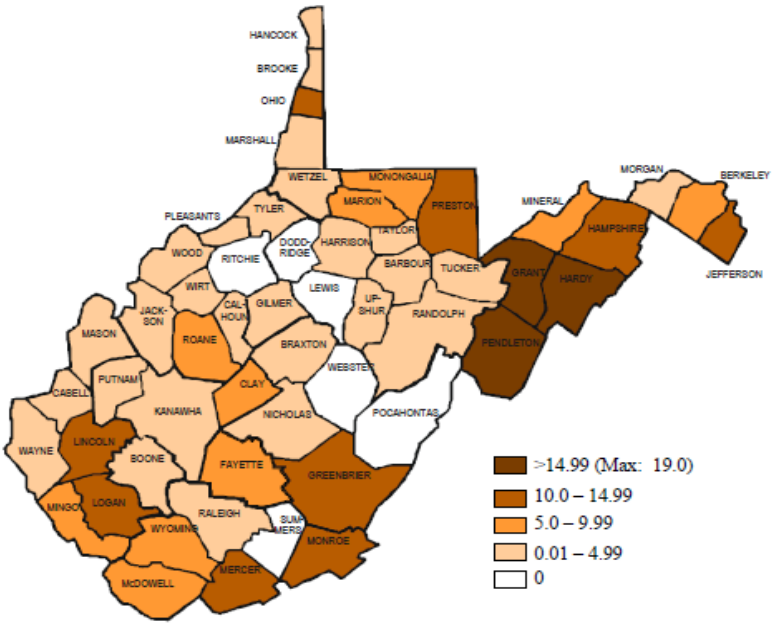

Figure 53. Average yearly incidence of Campylobacteriosis per 100,000 population, West Virginia, 1997-2006
Source: West Virginia Division of Infectious Disease Epidemiology

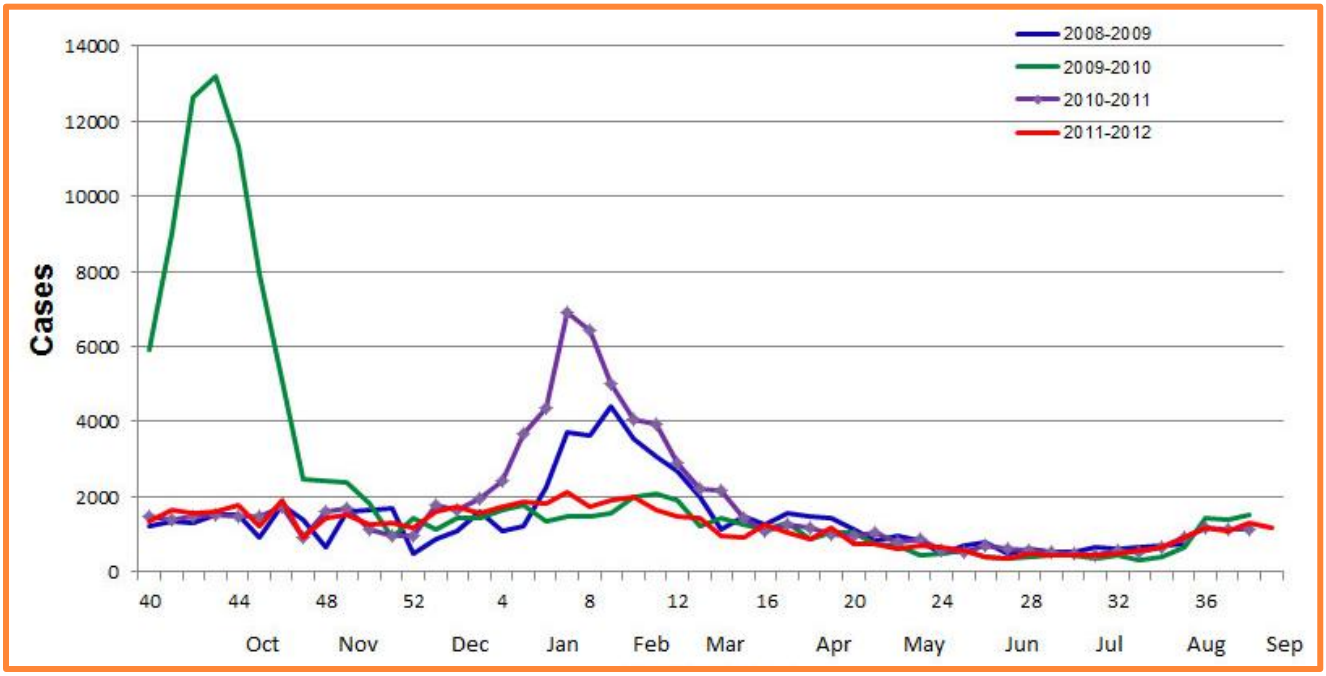

Figure 54. Number of outpatient influenza-like-illness reported by local health departments, 2008-2012
Source: West Virginia Division of Infectious Disease Epidemiology

infections are examples of flu-related complications. The flu also can make chronic health problems worse [14].

As demonstrated in Figure 54, the number of outpatient influenza-like-illnesses differs by year. In 2011-2012, the greatest number of cases (2,000) were reported in January 2012, while the highest number of cases in 2010-2011 was around 7,000 in January of 2011, the highest number of cases in 2008-2009 was around 4,000 in February of 2009, and the greatest number of cases in recent history was around 13,000 in October of 2009 (see fig. 52 and 53 for the number of influenza-like-illness during the 2011-

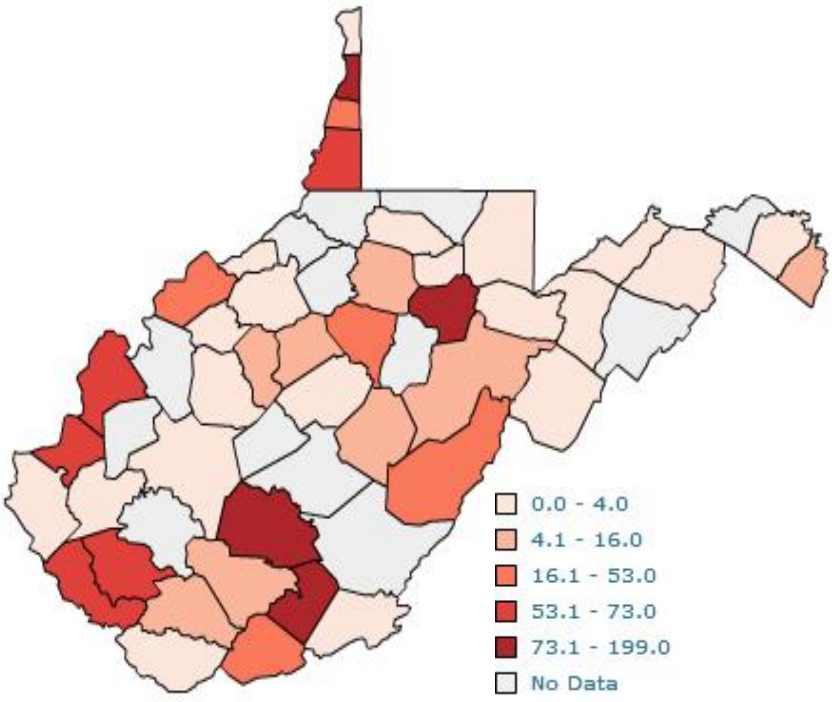

Figure 55. Number of influenza-like-illness cases for the 2011-2012 influenza season
Source: West Virginia Division of Infectious Disease Epidemiology

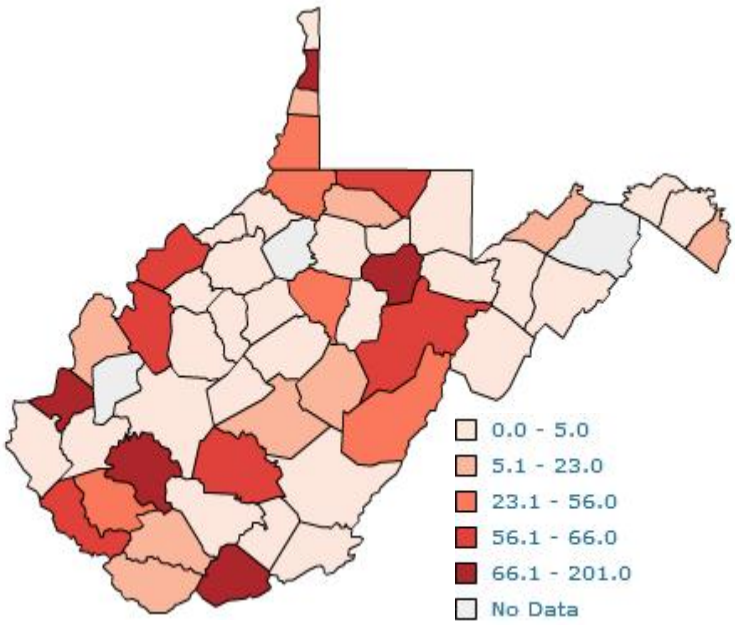

Figure 56. Number of influenza-like-illness cases for the 2010-2011 influenza season
Source: West Virginia Division of Infectious Disease Epidemiology

2012 and 2010-2011 flu seasons) [15].

Healthcare-Associated Infections

Healthcare-associated infections (HAIs) are infections patients acquire while receiving treatment for other conditions within a health care setting. At any given time, about 1 in every 20 inpatients has an infection related to hospital care [16].

HAIs are the most common complication of hospital care and are one of the top 10 leading causes of death in the United States, accounting for an estimated 1.7 million infections and 99,000 associated deaths in 2002. The financial burden attributable to these infections is estimated at $28 to $33 billion in excess health care costs each year [17].

However, recent studies suggest that implementing existing prevention practices can lead to up to a 70 percent reduction in certain HAIs [18].

The standardized infection ratio (SIR) is a summary measure used to track HAIs at a national, state or facility level over time. The SIR adjusts for the fact that each healthcare facility treats different types of patients. The SIR compares the actual number of HAIs in a facility or state with the baseline U.S. experience (i.e., standard population), adjusting for several risk factors that have been found to be most associated with differences in infection rates.

A SIR significantly greater than 1 indicates that more HAIs were observed than predicted, accounting for differences in the types of patients followed. Conversely, an SIR of significantly less than 1.0 indicates that fewer HAIs were observed than predicted [19].

In 2010, 38 of the 64 healthcare facilities in West Virginia reported central line-associated bloodstream infections (CLABSIs) to the National Healthcare Safety Network (NHSN). This percentage of facilities reporting (59.4) was higher than the United States percentage

	West Virginia		United States	
	2009	2010	2009	2010
All Locations	0.709	0.483	0.854	0.684
Critical Care Locations	NA	0.520	NA	0.654
Ward Locations	NA	0.355	NA	0.728
NICUs	NA	NA	NA	0.695

Table 24. Central line-associated bloodstream infections standardized infection ratios, 2009-2010
Source: CDC, HAIs, SIR Report

of all facilities reporting (39.1).
In addition, the state completed validation studies of the data [20].

Also in 2010, 13 of the 64 healthcare facilities in West Virginia reported catheter-associated urinary tract infections (CAUTIs) to the NHSN. This percentage of facilities reporting (20.3) was also higher than the overall percentage of facilities reporting in the United States (17.9). Additionally in 2010, five healthcare facilities in West Virginia reported surgical site infections (SSIs) to the NHSN.

As shown in Table 24, West Virginia's 2009 and 2010 SIRs for CLABSIs were lower than the United States ratios. The West Virginia SIR also significantly decreased between 2009 and 2010 and was always below 1.0, indicating that fewer HAIs were observed than predicted [20].

Communicable Diseases

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Cancer

	WV Age-Adjusted Incidence Rates	US Age-Adjusted Incidence Rates	WV Number of Diagnoses Per Year	WV Male Diagnoses Per Year	WV Female Diagnoses Per Year
2005-2009	490.8	465.0	10,893	5,719	5,174
2009	466.0	451.4	10,539	5,470	5,069
2008	479.6	462.1	10,760	5,644	5,116
2007	509.8	475.3	11,332	6,036	5,296
2006	506.1	474.8	11,100	5,892	5,208
2005	503.3	472.9	10,950	5,680	5,270

Table 25. Cancer incidence, West Virginia, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. Cancer is caused by both external factors (tobacco, infectious organisms, chemicals and radiation) and internal factors (inherited mutations, hormones, immune conditions and mutations that occur from metabolism) [1].

All cancers caused by cigarette smoking and heavy use of alcohol could be prevented completely. Scientific evidence suggests that about one-third of the cancer deaths expected to occur in 2012 will be related to overweight or obesity, physical inactivity and poor nutrition and thus could also be prevented. Certain cancers related to infectious agents could be prevented through behavioral changes, vaccines or antibiotics [1].

Regular screening examinations by a health care professional can result in the detection and removal of precancerous growths, as well as the diagnosis of cancers at an early stage, when they are most treatable. Cancers that can be diagnosed early through screening include cancers of the breast, colon, rectum, cervix, prostate, oral cavity and skin. Cancers that can be prevented or detected early by screening account for at least half of all new cancer cases [1].

Anyone can develop cancer. Since the risk of being diagnosed with

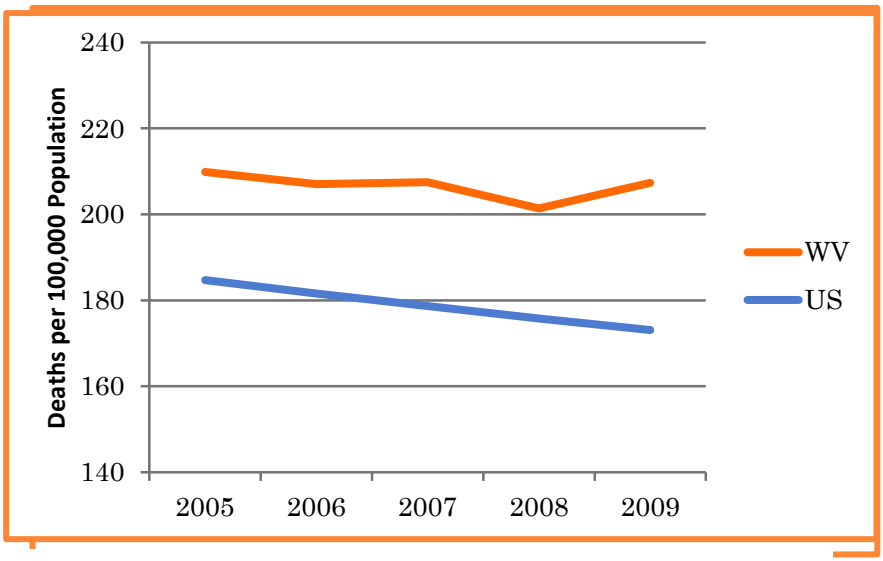

Figure 59. Cancer mortality rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

Cancer

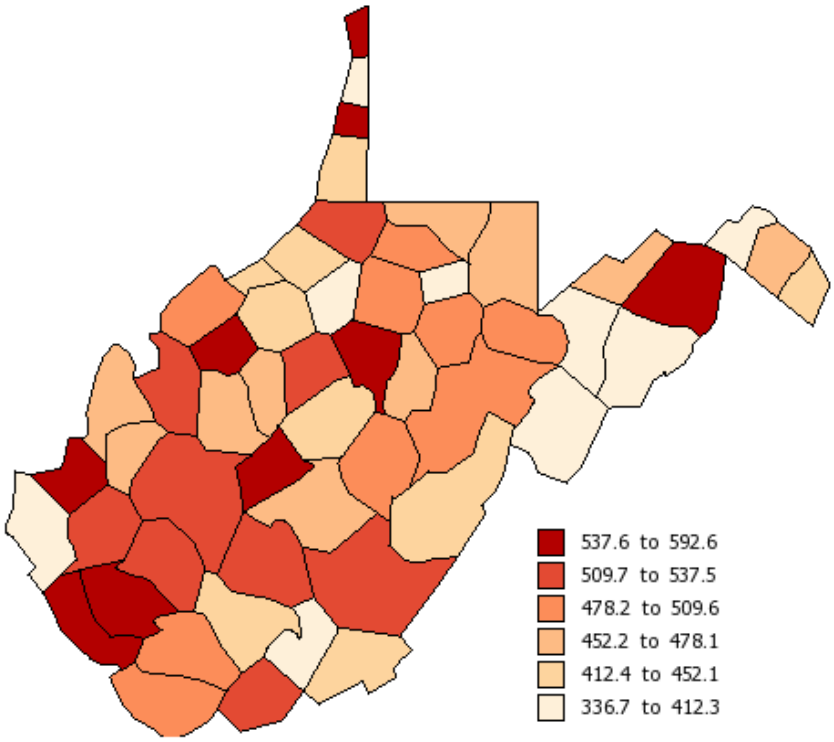

Figure 58. West Virginia age-adjusted cancer incidence rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

cancer increases with age, most cases occur in adults who are middle aged or older [1].

Cancer Incidence & Mortality

Cancer is the second leading cause of death in West Virginia, and accounts for approximately 22 percent of all deaths in the state [2]. Each year approximately 10,900 new cases of cancer are diagnosed and 4,700 deaths from cancer occur in the state. This amounts to approximately 30 new diagnoses and 13 deaths per day [3].

The West Virginia incident rate increased from 2005 to 2007, but decreased from 2007 to 2009. However, it was higher than the national incident rate all five years. Also, the West Virginia mortality rate decreased between 2005 and 2008, but increased from 2008 to 2009 and was higher than the national mortality rate all five years. In fact, in 2009, West Virginia had the highest cancer mortality rate of any state in the country [3].

In West Virginia, males are more likely to be diagnosed with, and die from, cancer [3].

Cancer

	WV Age-Adjusted Mortality Rates	US Age-Adjusted Mortality Rates	WV Deaths Per Year	WV Male Deaths Per Year	WV Female Deaths Per Year
2005-2009	206.6	178.7	4,662	2,472	2,191
2009	207.3	173.1	4,786	2,561	2,225
2008	201.4	175.8	4,605	2,455	2,150
2007	207.5	178.7	4,690	2,456	2,234
2006	207.0	181.6	4,613	2,457	2,156
2005	209.9	184.7	4,617	2,429	2,188

Table 26. Cancer mortality, West Virginia, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

Top Five Cancers in West Virginia

The five leading cancer diagnoses in West Virginia are cancers of the prostate, female breast, lung and bronchus, colon and rectum and uterus. The five leading causes of cancer mortality in West Virginia are lung and bronchus, female breast, prostate, colon and rectum and pancreas. These five cancers accounted for 57 percent of cancer deaths in the state between 2005 and 2009 [3].

The leading cancer diagnosis for males is lung and bronchus, followed by colon and rectum, prostate and pancreatic. The leading cancer diagnosis for females is lung and bronchus, followed by breast, colon and rectum and ovarian [3].

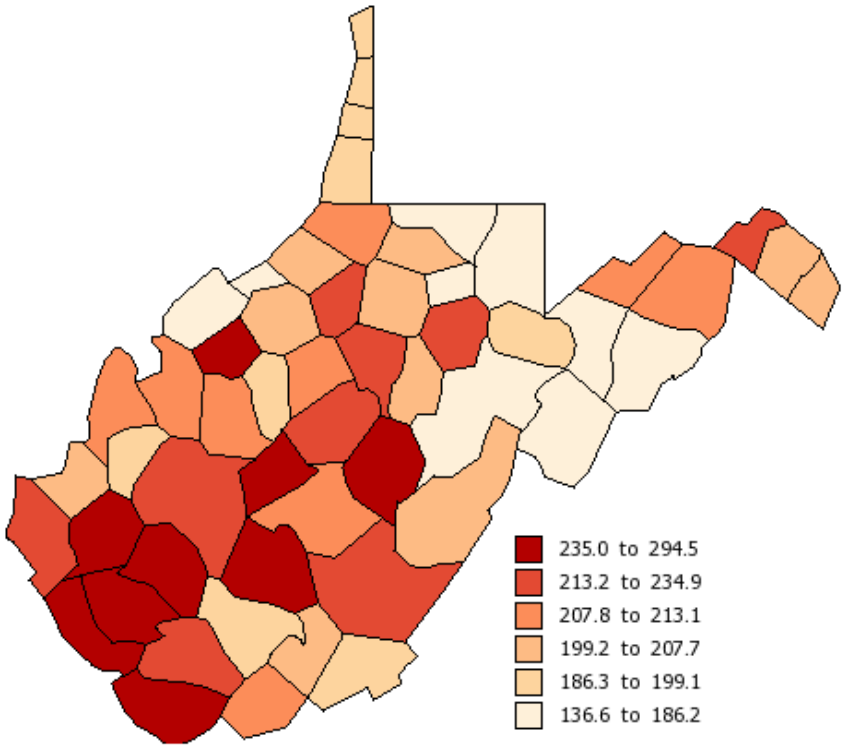

Figure 60. West Virginia age-adjusted cancer death rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

Lung and Bronchus Cancer

Lung and bronchus cancer is the leading cause of cancer deaths for both men and women in West Virginia. It represents one-third of all cancer deaths in the state, and kills more people than colon and rectum, female breast, prostate and pancreatic cancers combined.

Cancer

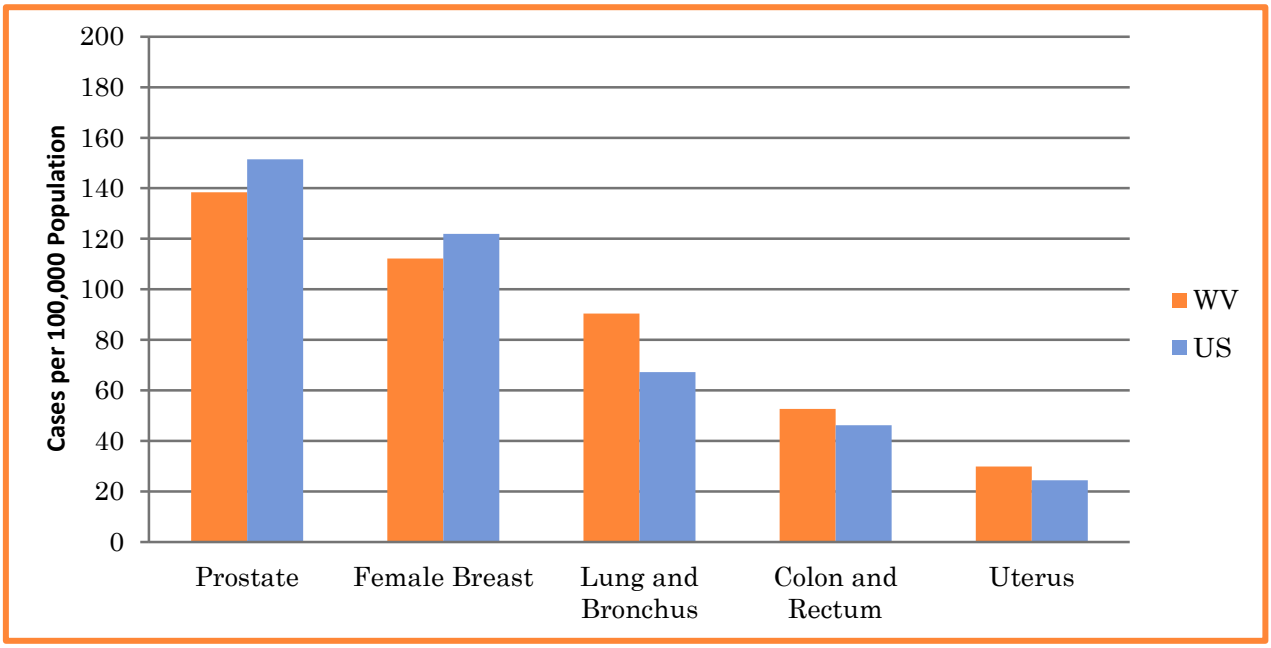

Figure 61. Top five age-adjusted cancer incidence rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

Cigarette smoking is by far the most important risk factor for lung cancer; risk increases with both quantity and duration of smoking. Cigar and pipe smoking also increase risk. Exposure to radon gas released from soil and building materials is estimated to be the second leading cause of lung cancer in Europe and North America. Other risk factors include occupational or environmental exposure

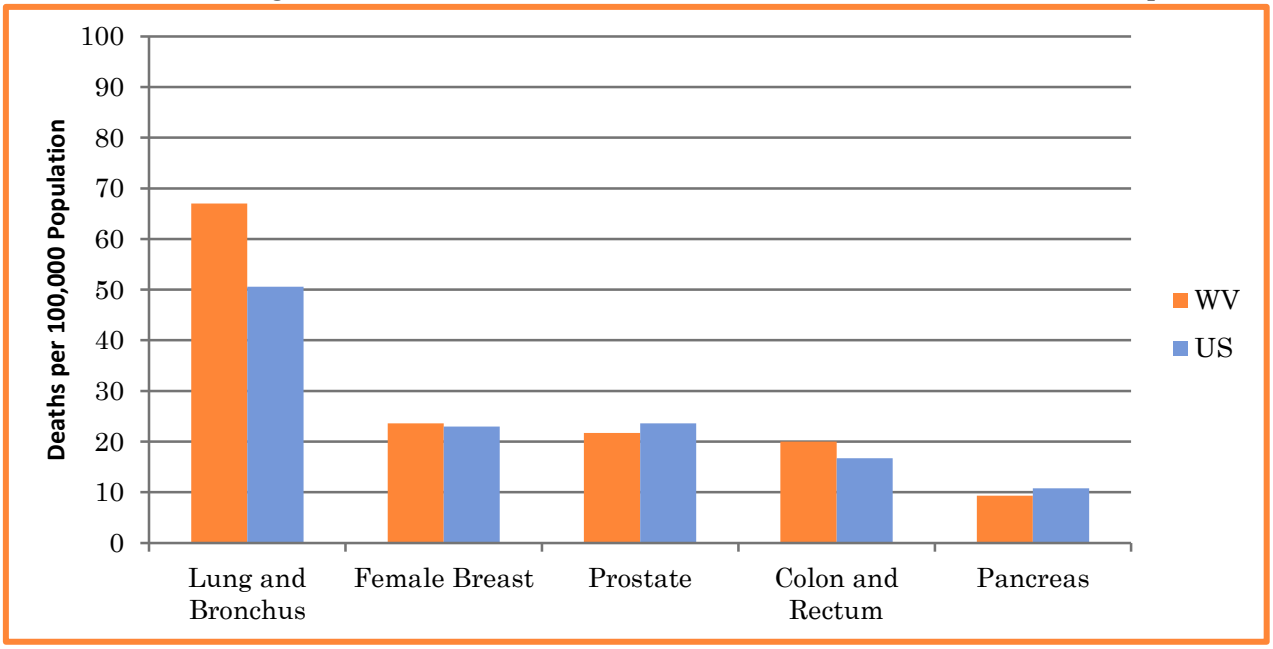

Figure 62. Top five age-adjusted cancer death rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

to secondhand smoke, asbestos (particularly among smokers), certain metals (chromium, cadmium, arsenic), some organic chemicals, radiation, air pollution and paint (occupational) [1].

West Virginia's age-adjusted incidence rate for lung and bronchus cancer in 2005-2009 was 90.4 per 100,000 persons, compared with the United States rate of 67.2 per 100,000. The West Virginia incident rate was 112.7 for males and 73.6 for females [3].

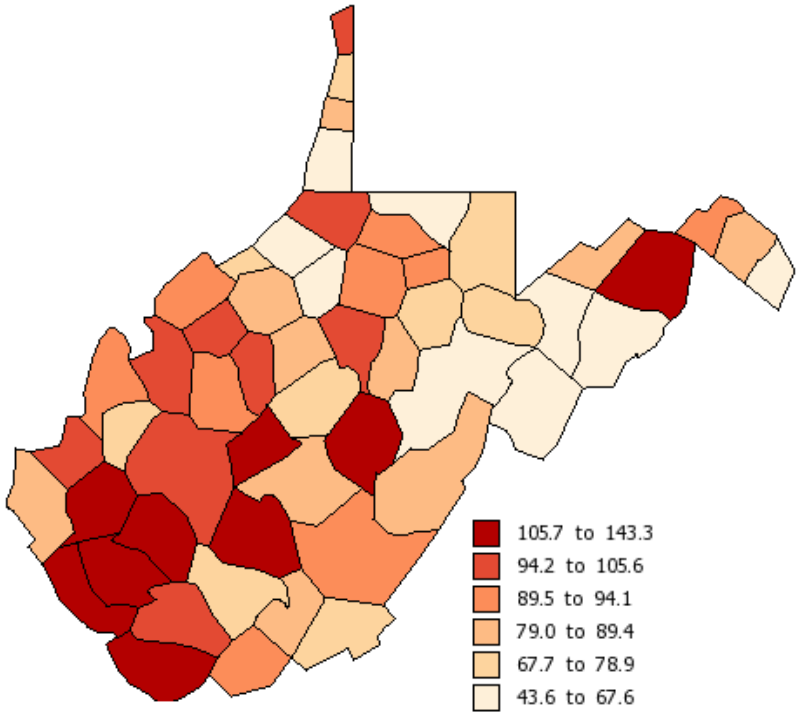

Figure 63. Age-adjusted lung and bronchus cancer incidence rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

West Virginia's age-adjusted mortality rate for lung and bronchus cancer in 2005-2009 was 67.0 per 100,000 persons, compared with the United States rate of 50.6 per 100,000. The West Virginia mortality rate was 87.5 for males and 51.9 for females [3].

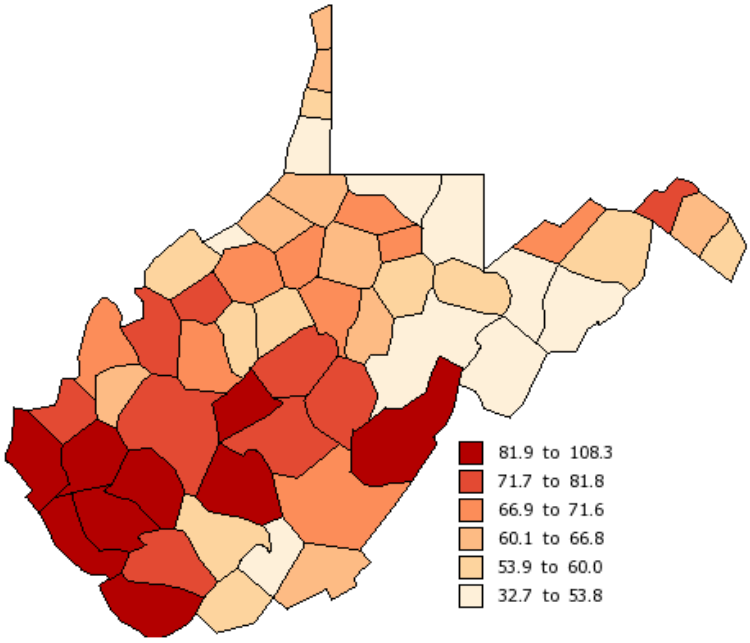

Figure 64. Age-adjusted lung and bronchus cancer death rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

Female Breast Cancer

Breast cancer is the second leading cause of cancer deaths for women in West Virginia [3].

Besides being female, increasing age is the most important risk factor for breast cancer. Potentially modifiable risk factors include weight gain after age 18, being overweight or

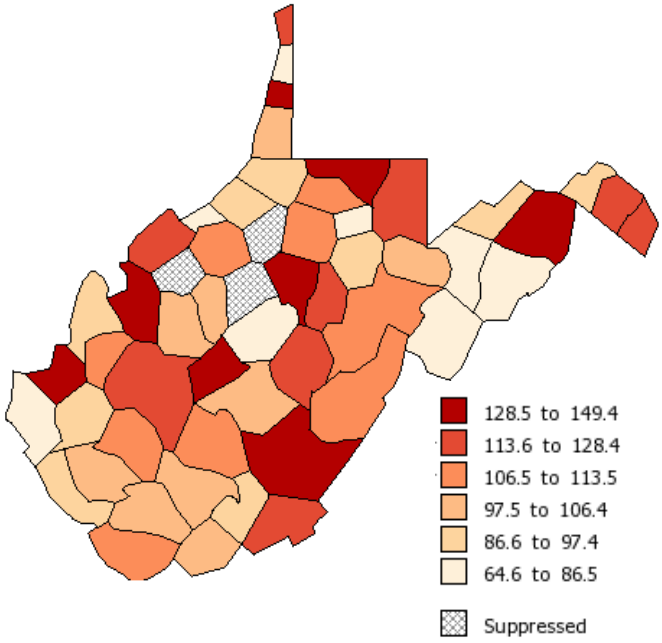

Figure 65. Age-adjusted female breast cancer incidence rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

obese, use of combined estrogen and progestin hormone therapy, physical inactivity and alcohol consumption. Reproductive factors that increase risk include a long menstrual history, recent use of oral contraceptives, never having children and having one's first child after age 30.

Modifiable factors that are associated with a lower risk of breast cancer include breastfeeding, moderate or vigorous physical activity and maintaining a healthy body weight [1].

Mammography can often detect breast cancer at an early stage, when treatment is more effective and a cure is more likely [1].

Among West Virginia women aged 40 and older, 27.7 percent had not had a mammogram in the past two years, compared to 24.6 percent of women in the United States [4].

West Virginia's age-adjusted incidence rate for female breast cancer in 2005-2009 was 112.2 per 100,000 persons, compared with the United States rate of 122.0 per 100,000 [3].

West Virginia's age-

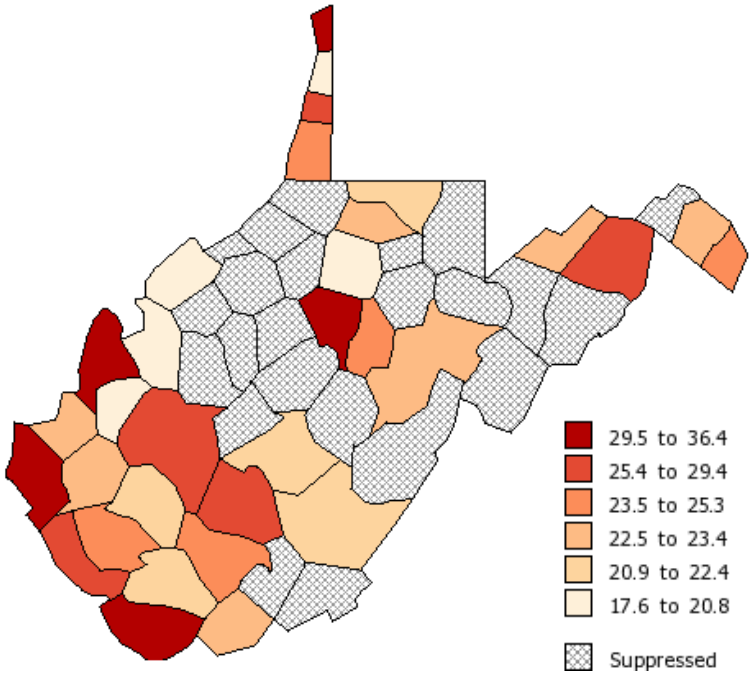

Figure 66. Age-adjusted female breast cancer death rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

Cancer

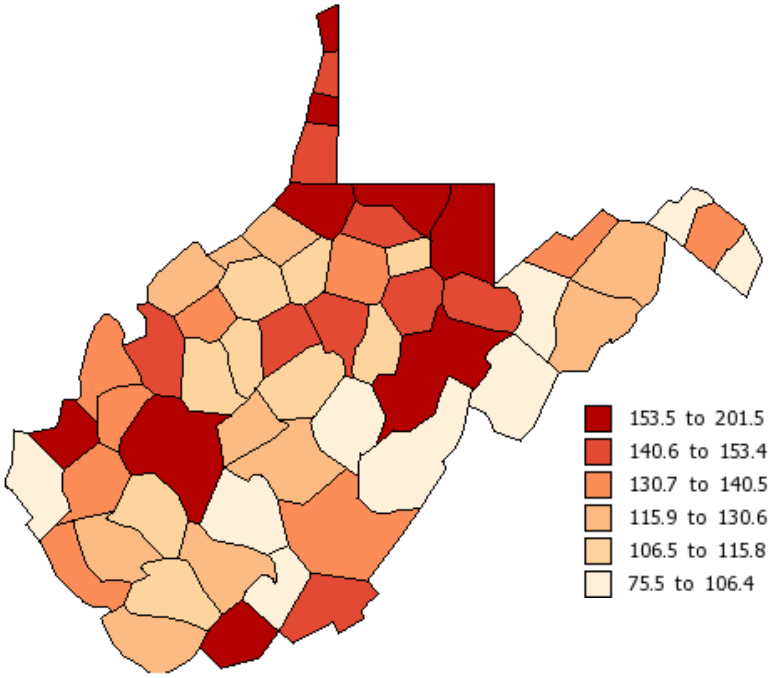

Figure 67. Age-adjusted prostate cancer incidence rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

adjusted mortality rate for female breast cancer in 2005-2009 was 23.6 per 100,000 persons, compared with the United States rate of 23.0 per 100,000 [3].

Prostate Cancer

Prostate cancer is the third leading cause of cancer deaths for men in West Virginia [3].

The only well-established risk factors for prostate cancer are increasing age, African ancestry, and a family history of the disease. Recent studies suggest that a diet high in processed meat or dairy foods may be a risk factor, and obesity appears to increase risk of aggressive prostate cancer [1].

Tests commonly used to screen for prostate cancer include a digital rectal exam (DRE), in which a doctor or nurse will insert a gloved, lubricated finger into the rectum to feel the prostate, and a prostate specific antigen test (PSA), a blood test that measures the level of PSA in the blood [5].

However, at this time, there is insufficient data to recommend for or against routine testing for early prostate cancer detection with the PSA test. The American Cancer Society recommends that beginning at age 50, men who are at average risk of prostate cancer and have a life expectancy of at least 10 years receive information about the potential benefits and known limitations associated with testing for early prostate cancer detection and have an opportunity to make an informed decision about testing [1].

The U.S. Preventive Services Task Force also recommends against prostate-specific antigen screening for men that do not have symptoms [5].

Among West Virginia men aged 50 and older, 31 percent have never had a DRE, and 25.5 percent have never had a PSA test, compared to 16.1 percent and 20.6 percent, respectively, of men in the United States [4].

West Virginia's age-adjusted incidence rate for prostate cancer in

2005-2009 was 138.4 per 100,000 persons, compared with the United States rate of 151.4 per 100,000 [3].

West Virginia's age-adjusted mortality rate for prostate cancer in 2005-2009 was 21.7 per 100,000 persons, compared with the United States rate of 23.6 per 100,000 [3].

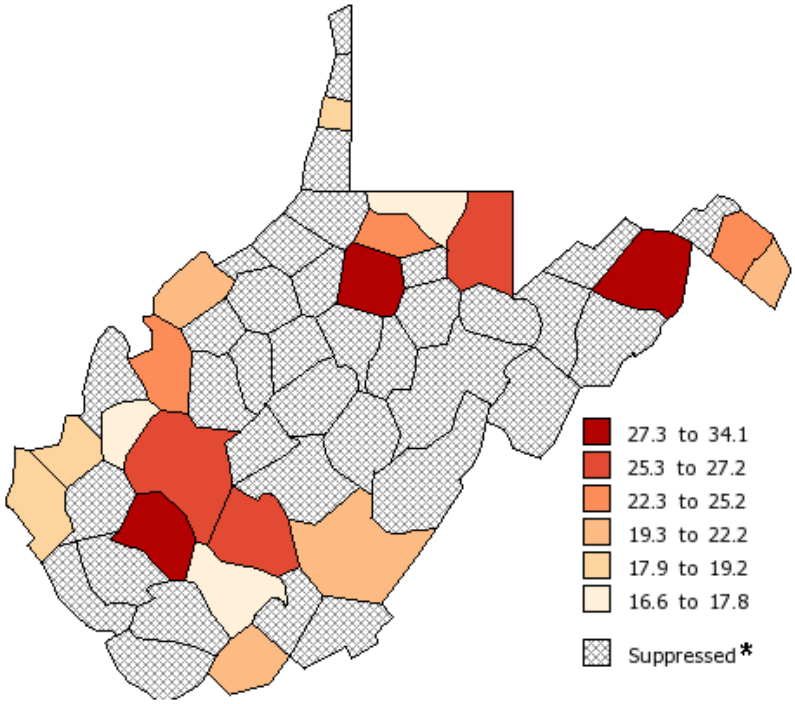

Figure 68. Age-adjusted prostate cancer death rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

Colon and Rectum Cancer

Colon and rectum cancer is the second leading cause of cancer deaths for men and the third leading cause of cancer deaths for women in West Virginia [3].

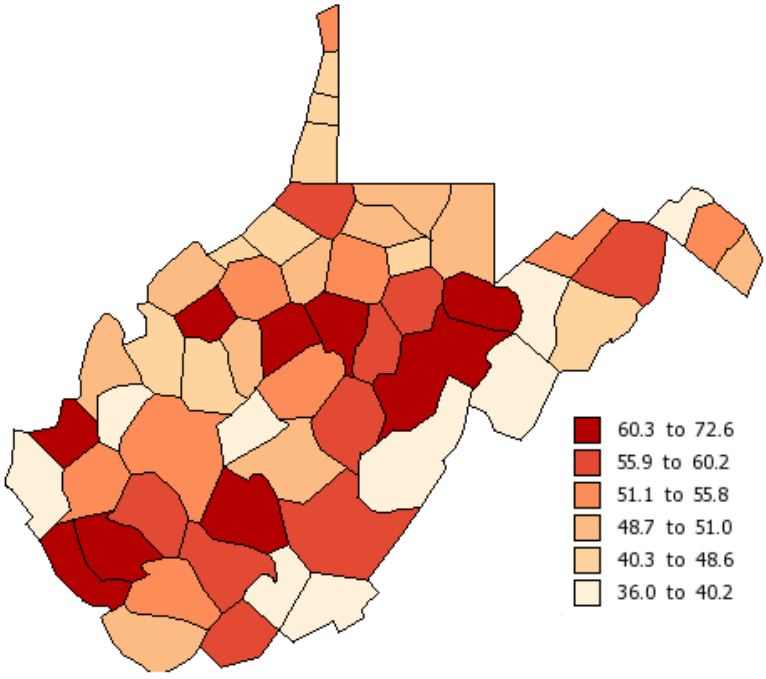

Figure 69. Age-adjusted colon and rectum cancer incidence rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

The risk of colorectal cancer increases with age. Modifiable factors associated with increased risk include obesity, physical inactivity, a diet high in red or processed meat, alcohol consumption, long-term smoking and possibly very low intake of fruits and vegetables. Hereditary and medical factors that increase risk include a personal or family history of colorectal cancer and/or polyps, a personal history of chronic inflammatory bowel disease and certain

inherited genetic conditions. Studies have also found that individuals with Type 2 diabetes are at higher risk of colorectal cancer. Consumption of milk and calcium and higher blood levels of vitamin D appear to decrease colorectal cancer risk [1].

Beginning at age 50, men and women who are at average risk for developing colorectal cancer should begin screening. Screening can result in the detection and removal of colorectal polyps that might have become cancerous, as well as the detection of cancer at an early stage, when treatment is usually less extensive and more successful.

Tests that find polyps and cancer include the flexible sigmoidoscopy, done every five years, and the colonoscopy, performed every ten years. The fecal occult blood test (FOBT) primarily finds cancer and is recommended once each year [1].

Among West Virginia adults aged 50 and older, 86.4 percent had not performed a FOBT in the past year and 45.6 percent had never had a sigmoidoscopy or a colonoscopy, compared to the United States rates of 87.9 percent and 34.2 percent, respectively [4].

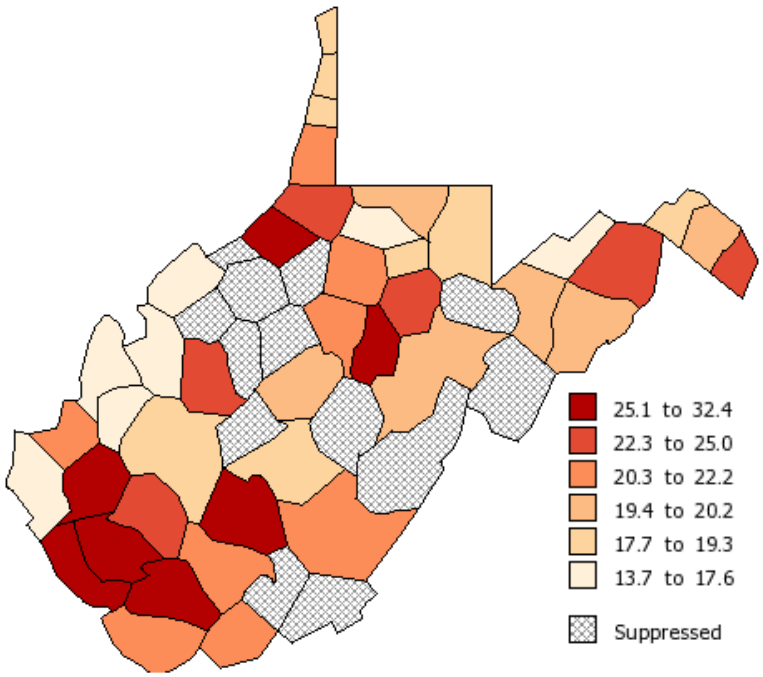

Figure 70. Age-adjusted colon and rectum cancer death rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

West Virginia's age-adjusted incidence rate for colon and rectum cancer in 2005-2009 was 52.6 per 100,000 persons, compared with the United States rate of 46.2 per 100,000. The West Virginia incident rate was 61.8 for males and 45.4 for females [3].

West Virginia's age-adjusted mortality rate for colon and rectum cancer in 2005-2009 was 20 per 100,000 persons, compared with the United States rate of 16.7 per 100,000. The West Virginia mortality rate was 24.2 for males and 16.8 for females [3].

Pancreatic Cancer

Pancreatic cancer is the fourth leading cause of cancer deaths for men and the fifth leading cause of cancer deaths for women in West Virginia [3].

Cancer

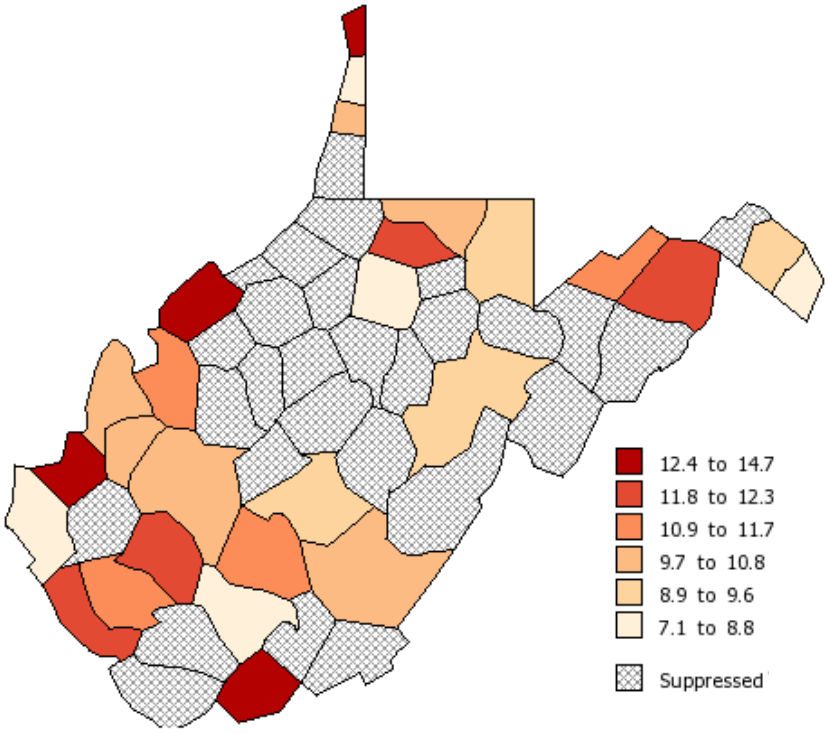

Figure 71. Age-adjusted pancreatic cancer incidence rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

West Virginia's age-adjusted incidence rate for pancreatic cancer in 2005-2009 was 10.5 per 100,000 persons, compared with the United States rate of 11.9 per 100,000. The West Virginia incident rate was 12.6 for males and 8.7 for females [3].

West Virginia's age-adjusted mortality rate for pancreatic cancer in 2005-2009 was 9.3 per 100,000 persons, compared with the United States rate of 10.8 per 100,000. The West Virginia mortality rate was 11.2 for males and 7.7 for females [3].

Tobacco smoking and smokeless tobacco use increase the risk of pancreatic cancer; incidence rates are about twice as high for cigarette smokers as for nonsmokers. Risk also increases with a family history of pancreatic cancer and a personal history of pancreatitis, diabetes, obesity, and possibly high levels of alcohol consumption. Though evidence is still accumulating, consumption of red meat may increase risk [1]. At present, there is no widely used method for the early detection of pancreatic cancer [1].

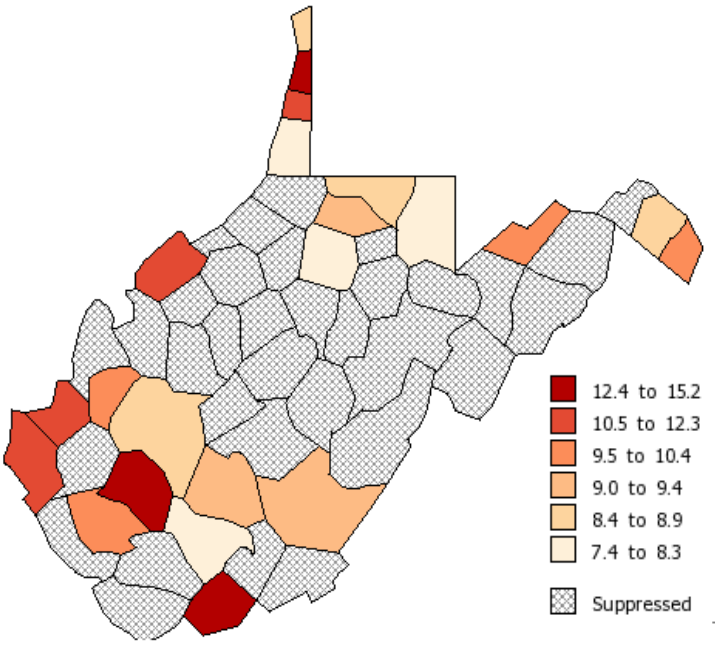

Figure 72. Age-adjusted pancreatic cancer death rates, 2005-2009
Source: CDC U.S. Cancer Statistics & State Cancer Profiles

Cancer

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Hypertension

About 1 in 3 U.S. adults has high blood pressure, which increases the risk for heart disease and stroke, leading causes of death in the United States. Eating too much sodium, being overweight, not getting enough exercise, drinking too much alcohol and smoking are risk factors for high blood pressure. Also, blood pressure tends to rise as people get older, African Americans have a higher prevalence of high blood pressure than whites, about 60 percent of people who have diabetes also have high blood pressure, and people can inherit genes that make them more likely to develop the condition [1].

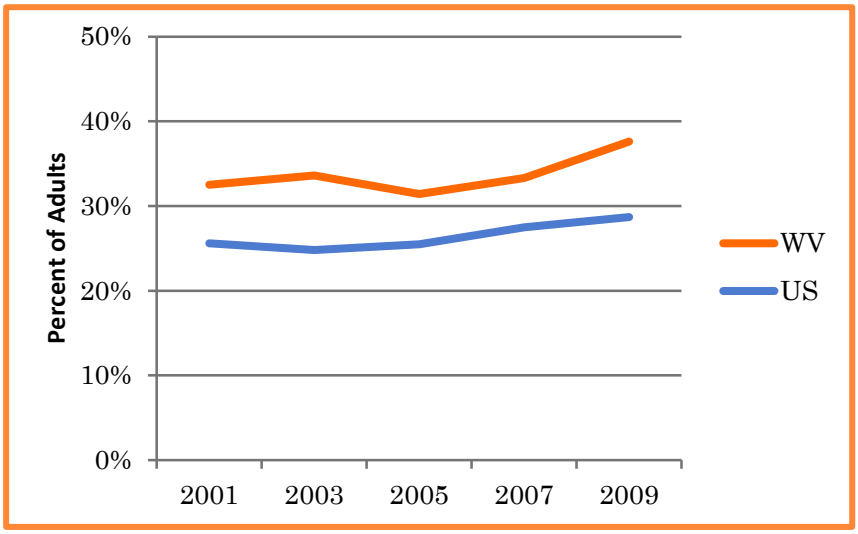

Figure 73. Adults told they have hypertension, 2001-2009
Source: CDC BRFSS

In 2009, more than a third (37.6 percent) of West Virginia adults reported ever being told they have high blood pressure, a significantly higher rate than the United States percentage of 28.7. In West Virginia, the rate increased from 2001 to 2009, and was higher than the rate in the United States every year [2].

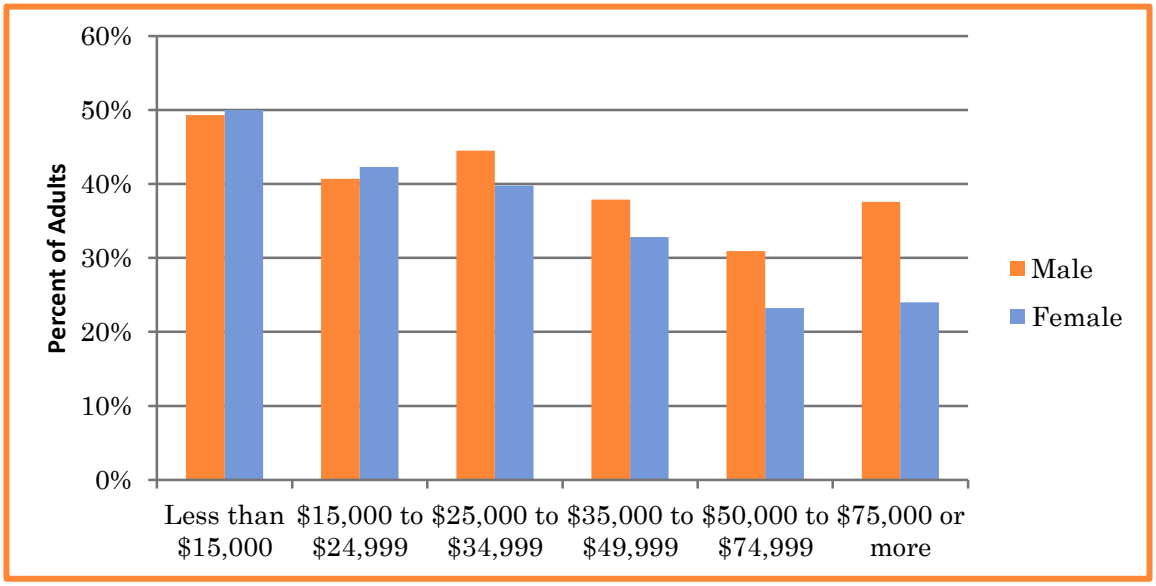

Figure 74. Adults told they have hypertension by gender and income, 2009
Source: West Virginia Bureau for Public Health BRFSS

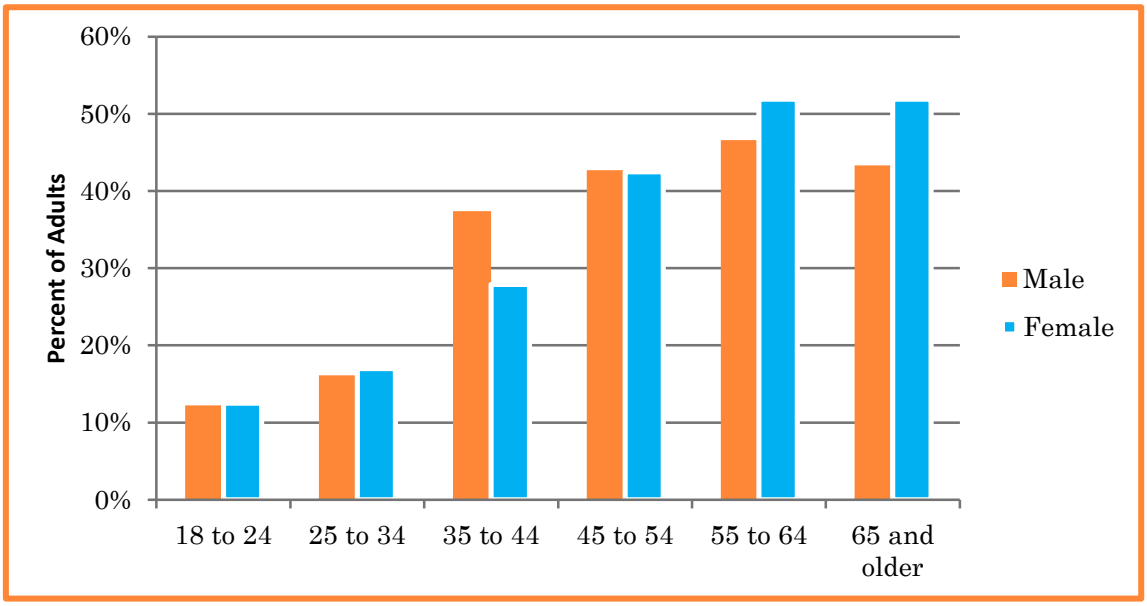

Figure 75. Adults told they have high cholesterol by gender and age, 2009
Source: West Virginia Bureau for Public Health BRFSS

According to the West Virginia Health Statistics Center, hypertension prevalence was not significantly different between genders in 2009 (39 percent for males and 36.3 percent for females). High blood pressure prevalence increased significantly with increasing age. Adults without a high school diploma and those with lower incomes had a significantly higher hypertension prevalence than those with more education and those with higher incomes [3].

One county in West Virginia, Mingo, had a significantly higher prevalence of hypertension than the state prevalence, while five counties, Berkeley, Jefferson, Marshall, Monongalia and Upshur had a significantly lower prevalence of hypertension [3].

Cholesterol

Having high blood cholesterol increases the risk for heart disease, the leading cause of death in the United States. Eating high-fat food, being overweight, and not getting enough exercise are risk factors for high cholesterol. Also, the risk

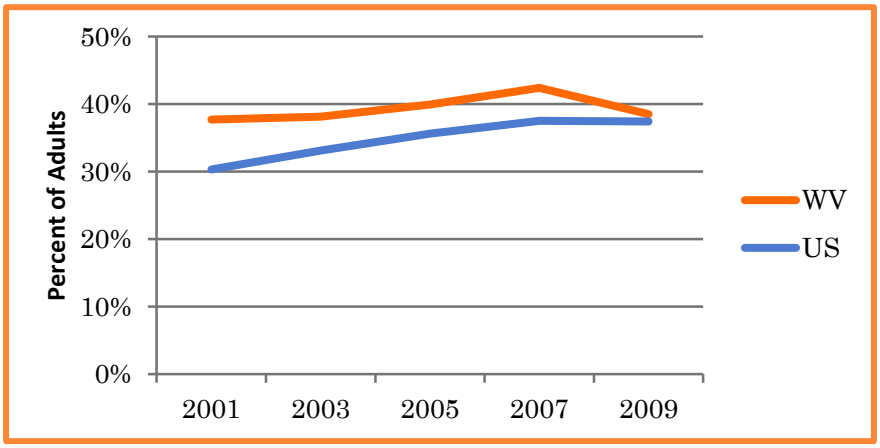

Figure 76. Adults told they have high cholesterol, 2001-2009
Source: CDC BRFSS

increases as people get older or if they have diabetes. In addition, high cholesterol can run in families [4].

In 2009, 80.4 percent of West Virginia adults had their cholesterol checked within the last five years, compared to 76.9 percent of adults in the United States. Among those who had their cholesterol checked in 2009, 38.5 percent had high cholesterol, compared to 37.4 percent of adults in the United States. In West Virginia, the prevalence rate of high cholesterol increased slightly from 2001 to 2009, and was higher than the rate in the United States each year [2].

According to the West Virginia Health Statistics Center, high cholesterol prevalence was not significantly different between genders in 2009 (37.2 percent for males and 39.6 percent for females). High cholesterol was more prevalent among older adults. Adults with less than a high school education had a significantly higher prevalence of high cholesterol than other educational levels. About half of those in the lowest income group had high cholesterol, compared to only about one third of those in higher income groups [3].

One West Virginia county, McDowell, had a significantly higher prevalence of high cholesterol awareness than the state prevalence, while five counties have a significantly lower rate, including Jefferson, Marion, Monongalia, Preston and Tucker [3].

Arthritis

Arthritis is the most common cause of disability in the United States. Certain risk factors have been shown

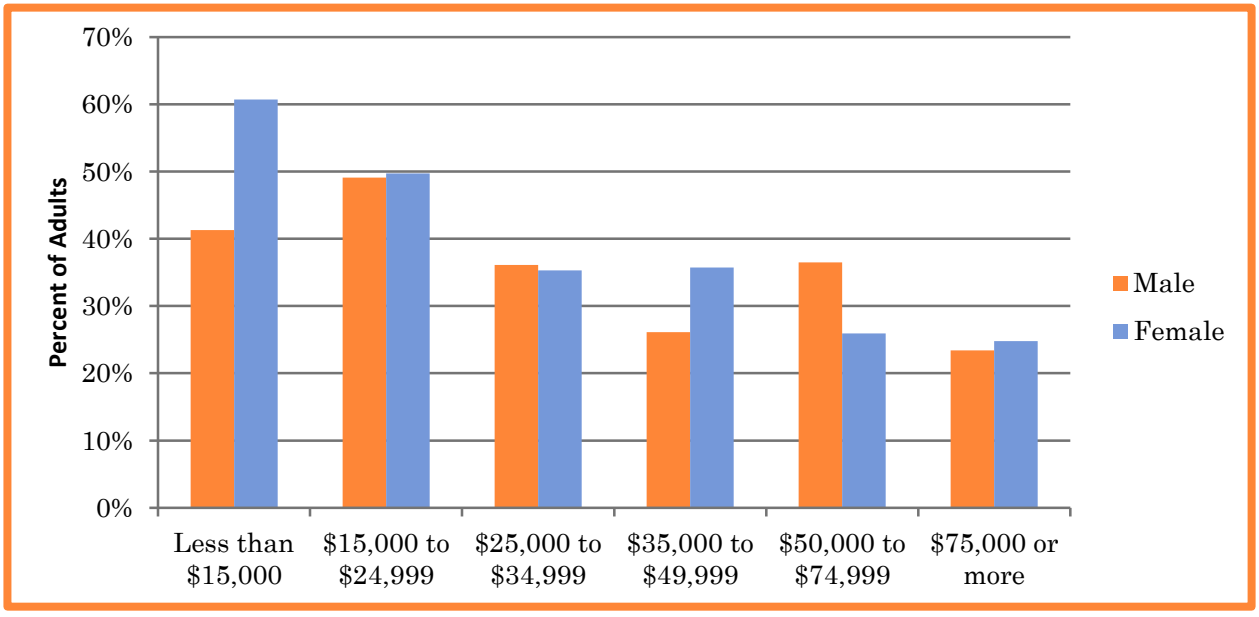

Figure 77. Adults told they have arthritis by gender and income, 2009
Source: West Virginia Bureau for Public Health BRFSS

to be associated with a higher risk of arthritis. Non-modifiable risk factors include age (the risk of developing most types of arthritis increases with age), gender (60 percent of all people with arthritis are women) and genetics (specific genes are associated with a higher risk of certain types of arthritis). Modifiable risk factors include overweight and obesity (excess weight can contribute to both the onset and progression of knee osteoarthritis), joint injuries (damage to a joint can contribute to the development of osteoarthritis in that joint), infection (many microbial agents can infect joints and potentially cause the development of various forms of arthritis), and occupation (certain occupations involving repetitive knee bending and squatting are associated with osteoarthritis of the knee) [5].

In 2009, approximately one-third (33.9 percent) of West Virginia adults reported ever being told they have arthritis, compared to 25.9 percent of adults in the United States. (In 2010, the West Virginia rate increased to 36 percent; however, no U.S. prevalence rate is available for comparison.) In West Virginia, the rate of arthritis increased from 2001 to 2009, and was higher than the rate in the United States every year [2,3].

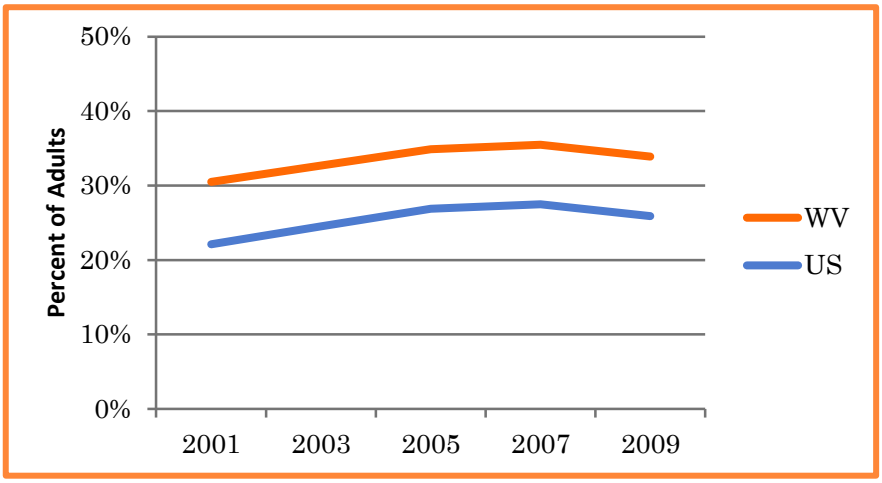

Figure 78. Adults told they have arthritis, 2001-2009
Source: CDC BRFSS

According to the West Virginia Health Statistics Center, arthritis prevalence was significantly higher among females than males in 2009 (37.4 percent for females and 30.1 percent for males), but not in 2010 (38.3 percent for females and 33.6 percent for males). Arthritis prevalence significantly increased among adults in each higher age group in 2009 and 2010. The prevalence of arthritis decreased as educational levels increased and as household income increased in 2009 and 2010 [3].

Two counties reported a significantly higher prevalence of arthritis than the state's prevalence, including McDowell and Wyoming, while four counties reported a lower prevalence, including Berkeley, Jefferson, Monongalia and Putnam [3].

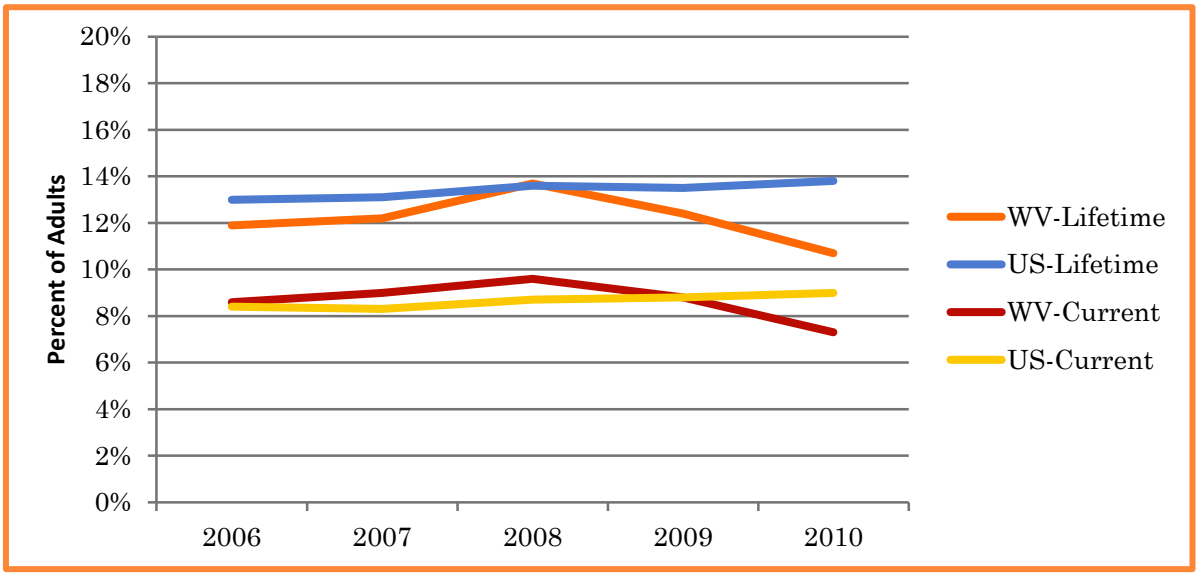

Figure 79. Adults with lifetime and current asthma, 2006-2010
Source: CDC BRFSS (US numbers are median %)

Asthma

Asthma is a disease that affects the lungs, and causes repeated episodes of wheezing, breathlessness, chest tightness, and coughing. An asthma attack can happen when someone is exposed to "asthma triggers." Some of the common triggers are: tobacco smoke, dust mites, outdoor air pollution, cockroach allergen, furry pets, mold and smoke from burning wood or grass. Infections linked to influenza (flu), colds and respiratory syncytial virus (RSV) can trigger an asthma attack. Sinus infections, allergies, breathing in

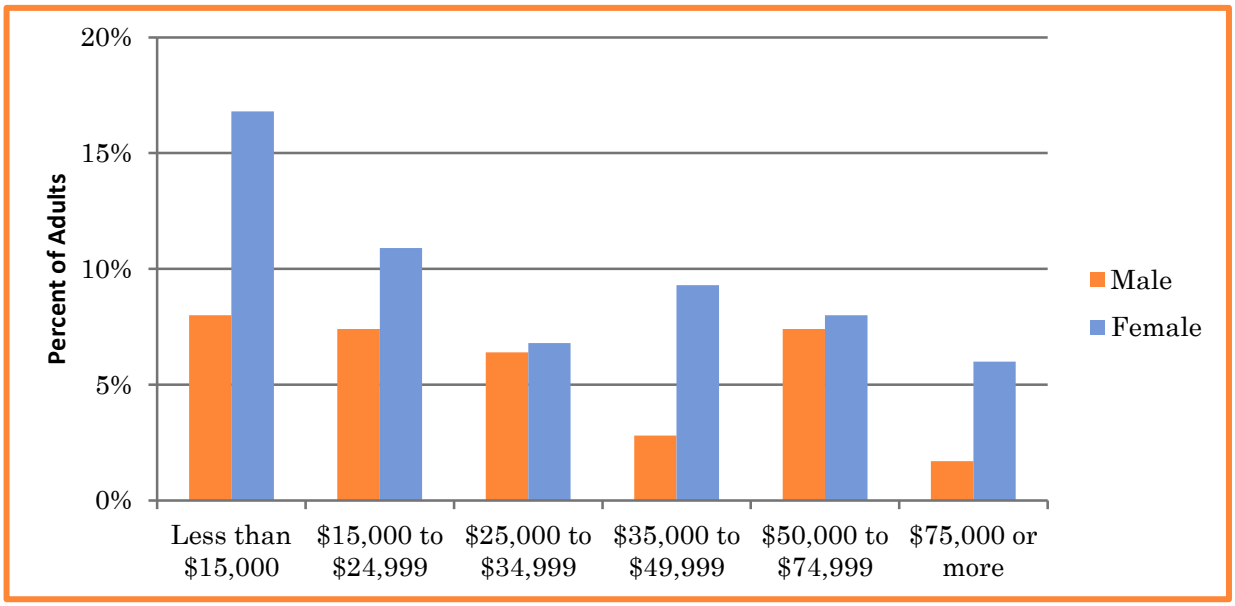

Figure 80. Adults with current asthma by gender and income, 2010
Source: West Virginia Bureau for Public Health BRFSS

some chemicals, and acid reflux can also trigger attacks. Physical exercise, some medicines, bad weather, such as thunderstorms or high humidity, breathing in cold, dry air, and some foods, food additives, and fragrances can also trigger an asthma attack. Strong emotions can lead to very fast breathing, called hyperventilation, which can also cause an asthma attack [6].

In 2010, 10.7 percent of West Virginia adults had ever been diagnosed with asthma while 7.3 percent currently had asthma, compared to 13.8 percent and 9 percent, respectively, of United States adults. In West Virginia, both the lifetime and the current asthma rates slightly decreased from 2006 to 2010, but in the United States both the lifetime and the current asthma rates slightly increased during that time period [2].

According to the West Virginia Health Statistics Center, females had a significantly higher lifetime asthma prevalence than males in 2010 (12.7 percent for females and 8.6 percent for males). Females also had a significantly higher current asthma prevalence than males in 2010 (9.3 percent for females and 5.1 percent for males). Current asthma prevalence did not differ significantly by age. Current asthma prevalence was highest among adults without a high school diploma and those in the lowest household income group [3].

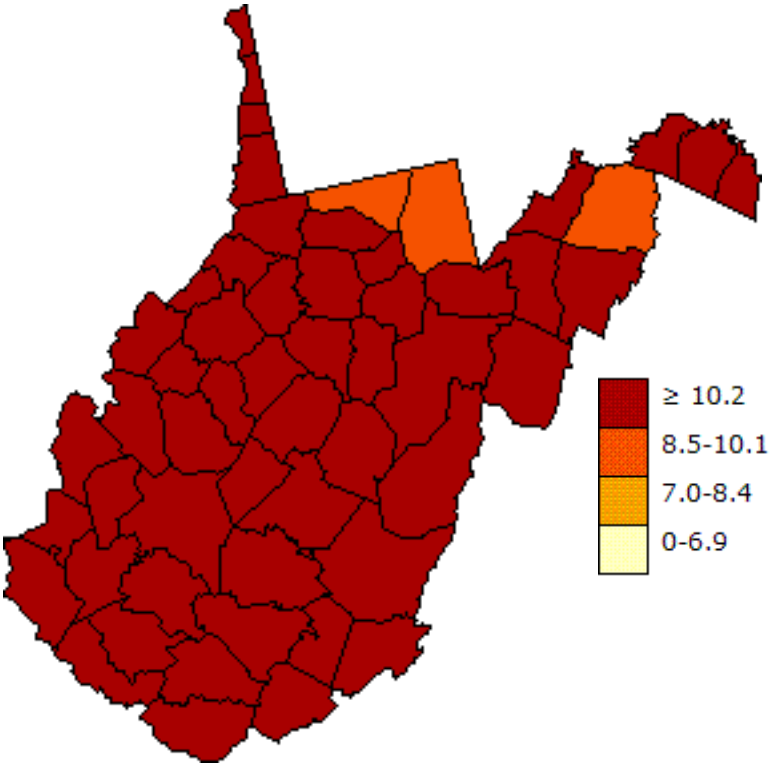

Figure 81. Aged-adjusted estimates of the percentage of adults diagnosed with diabetes in West Virginia, 2008-2010
Source: CDC

Diabetes

Diabetes is a disease in which blood glucose levels are above normal. Risk factors for Type 2 diabetes include older age, obesity, family history of diabetes, prior history of gestational diabetes, impaired glucose tolerance, physical inactivity and race/ethnicity. African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Pacific

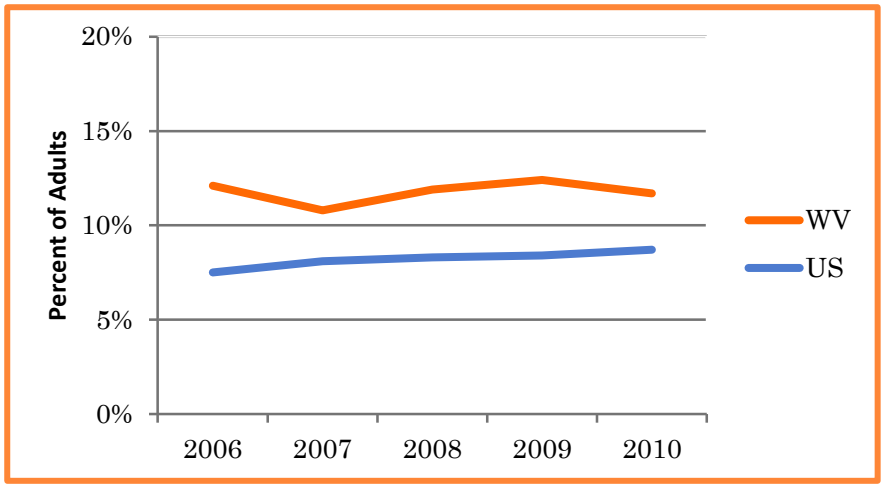

Figure 82. Adults diagnosed with diabetes, 2006-2010
Source: CDC BRFSS

Islanders are at particularly high risk for Type 2 diabetes. Diabetes is the seventh leading cause of death in the United States and the sixth leading cause of death in West Virginia [7,14].

In 2010, 11.7 percent of West Virginia adults reported having been diagnosed with diabetes, compared to 8.7 percent of adults in the United States. In West Virginia, the rate generally remained unchanged from 2006 to 2010, but was higher than the rate in the United States every year. Also, the prevalence of diabetes among West Virginia adults has increased steeply and significantly since 1995 [2,3].

According to the West Virginia Health Statistics Center, diabetes prevalence was not significantly different between genders in 2010 (11.8 percent for males and 11.5 percent for females). Adults 65 and older had the highest diabetes prevalence among the age groups. Adults with the least education had the highest diabetes

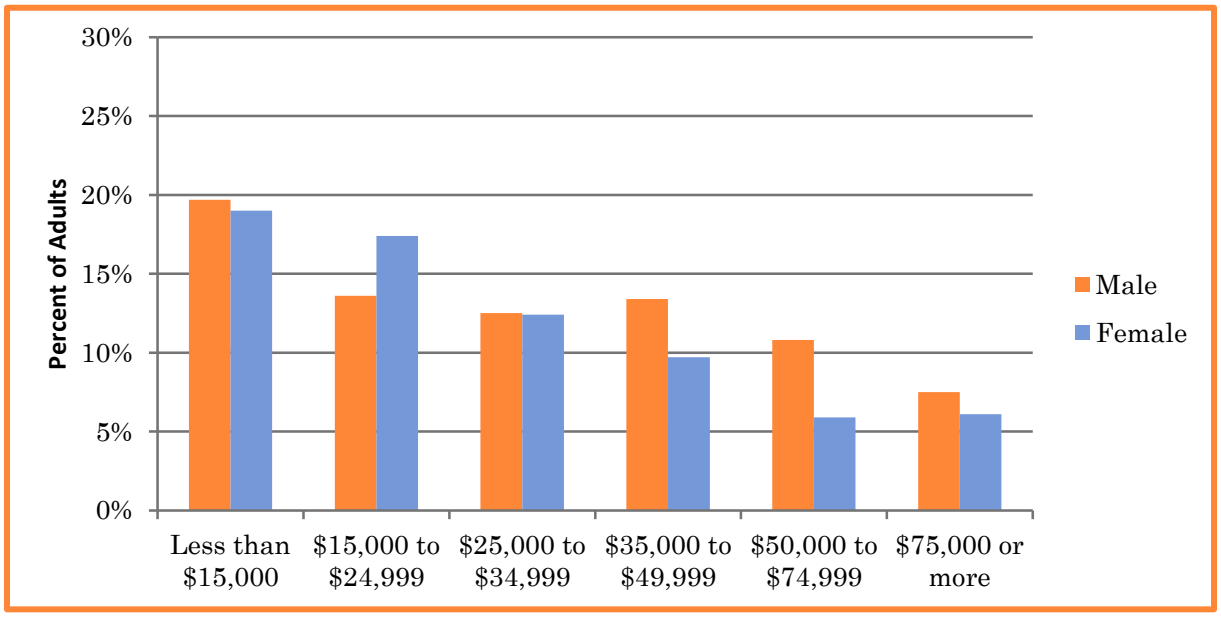

Figure 83. Adults diagnosed with diabetes by gender and income, 2010
Source: West Virginia Bureau for Public Health BRFSS

prevalence. The lowest prevalence of diabetes was among college graduates. Diabetes prevalence also decreased with increasing income [3].

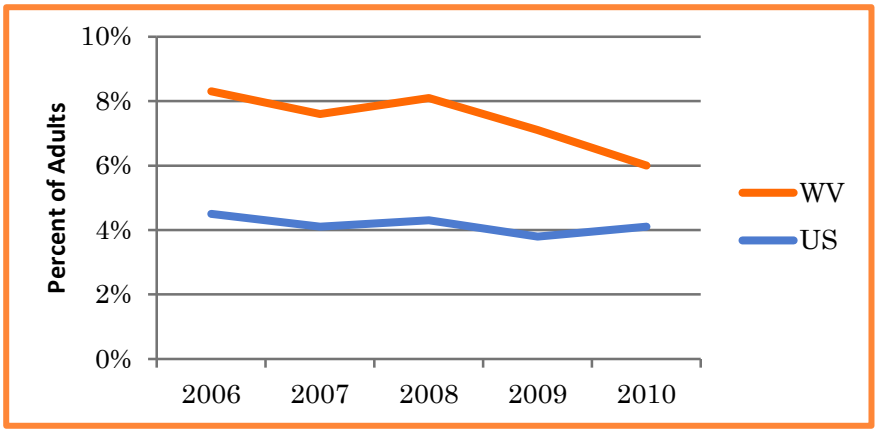

Figure 84. Adults told they have coronary heart disease (angina), 2006-2010
Source: CDC BRFSS

Heart Disease

The term "heart disease" refers to several types of heart conditions. The most common type in the United States is coronary artery disease, which can cause heart attack, angina, heart failure, and arrhythmias. Some conditions as well as some lifestyle factors can put people at a higher risk for developing heart disease. Some risk factors include high blood cholesterol, high blood pressure, diabetes, tobacco use, diet, physical inactivity, obesity, and alcohol. Also, heart disease can run in the family [8].

West Virginia ranked higher than any other state in 2009 and third highest in 2010 for the prevalence of coronary heart disease (angina) among adults (7.1 percent in 2009 and 6 percent in 2010). By comparison, the rate of angina among adults in the United States was 3.8 percent in 2009 and 4.1 percent in 2010. In West Virginia, the rate decreased from 2006 to 2010, but was higher than the rate in the United States every year [2,3].

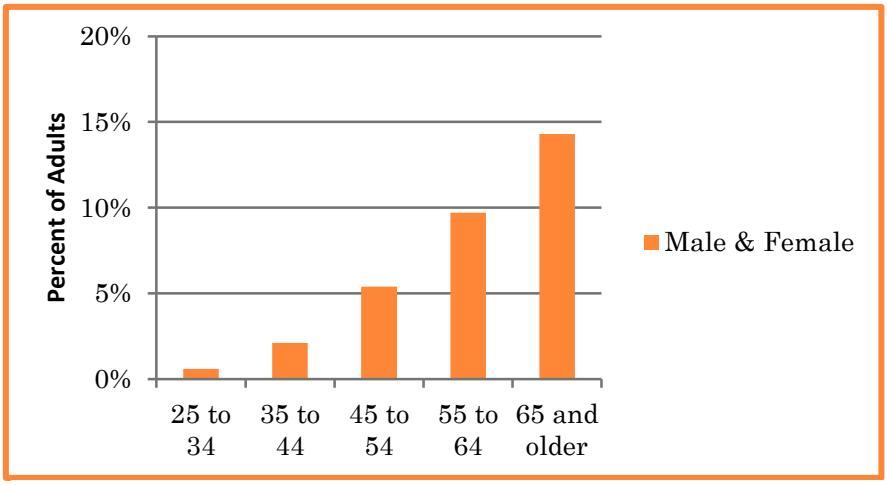

Figure 85. Adults told they have coronary heart disease by age, 2010
Source: West Virginia Bureau for Public Health BRFSS

According to the West Virginia Health Statistics Center, coronary heart disease (angina) prevalence was not significantly different between genders in 2010 (6.8 percent for males and 5.3 percent for females). Those aged 65 and older had a significantly higher angina prevalence than younger age groups. Adults with less than a high school education and those with lower incomes had significantly higher

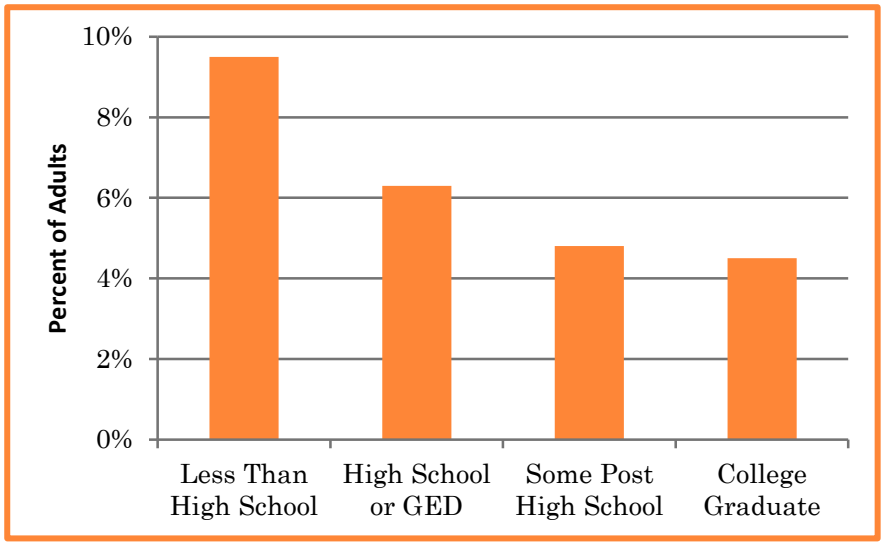

Figure 86. Adults told they have coronary heart disease by education, 2010
Source: West Virginia Bureau for Public Health BRFSS

angina prevalence than those with more education and those with higher incomes [3].

Heart Attack

The prevalence of heart attacks among West Virginia adults remained around 7 percent from 2006 to 2010, which was higher than the rate in the United States every year [2]. According to the West Virginia Health Statistics Center, heart attack prevalence was significantly higher among those 65 and older, those with less than a high school education, and those in the lowest income group [3].

Stroke

A stroke, sometimes called a brain attack, occurs when a clot blocks the blood supply to the brain or when a blood vessel in the brain bursts. Anyone can have a stroke, but certain behaviors and medical conditions can increase the chances, such as high blood pressure, high blood cholesterol, heart disease, diabetes, overweight or obese, previous stroke, sickle cell disease, tobacco use, alcohol use and physical inactivity. In addition, having a family history of stroke, being older, being male or being black or Hispanic increases the chance of a stroke [9].

In 2010, 3.5 percent of West Virginia adults reported ever being told they had a stroke, compared to 2.6 percent of adults in the United States. In West Virginia, the rate slightly decreased from 2006 to 2010, but was higher

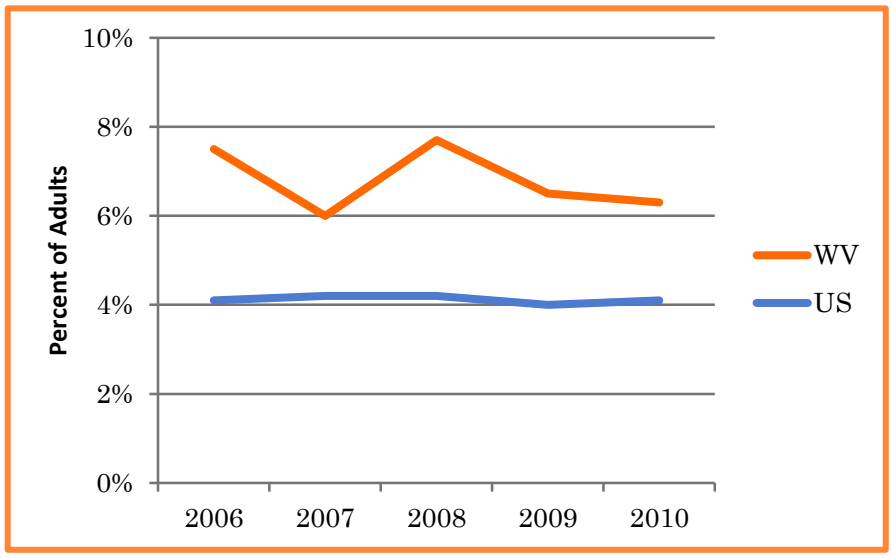

Figure 87. Adults told they had a heart attack, 2006-2010
Source: CDC BRFSS

than the rate in the United States every year [2].

According to the West Virginia Health Statistics Center, stroke prevalence was not significantly different between genders in 2010 (3.2 percent for males and 3.8 percent for females). Adults aged 65 and older had a significantly higher stroke prevalence than younger age groups. Adults with less than a high school education and those in the lowest income groups had a significantly higher stroke prevalence than those with more education and those in the highest income groups [3].

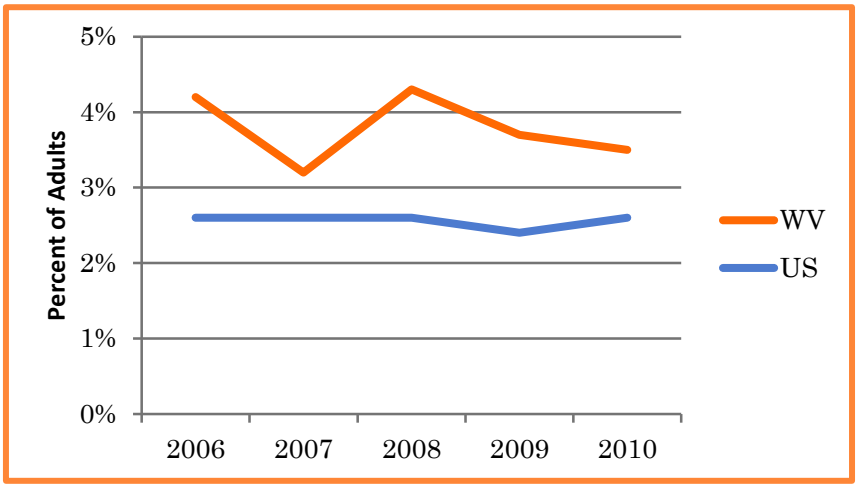

Figure 88. Adults told they had a stroke, 2006-2010
Source: CDC BRFSS

Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) is a term referring to two lung diseases: chronic bronchitis and emphysema. Both conditions cause obstruction of airflow that interferes with normal breathing. Both frequently exist together, so physicians prefer the term COPD. COPD is preventable and treatable [10].

Smoking is the leading risk factor for COPD. In fact, approximately 80 to 90 percent of COPD deaths are caused by smoking. Other risk factors include exposure to air pollution and second-hand smoke, a history of childhood respiratory infections and heredity. Particulate matter from cigarette smoke and air pollution, including smoke from poorly ventilated wood stoves, are related to lung damage [10].

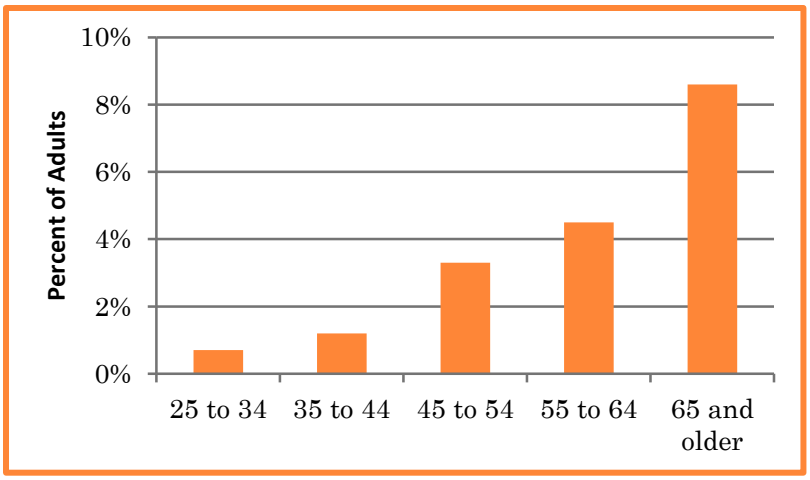

Figure 89. Adults told they had a stroke by age, 2010
Source: West Virginia Bureau for Public Health BRFSS

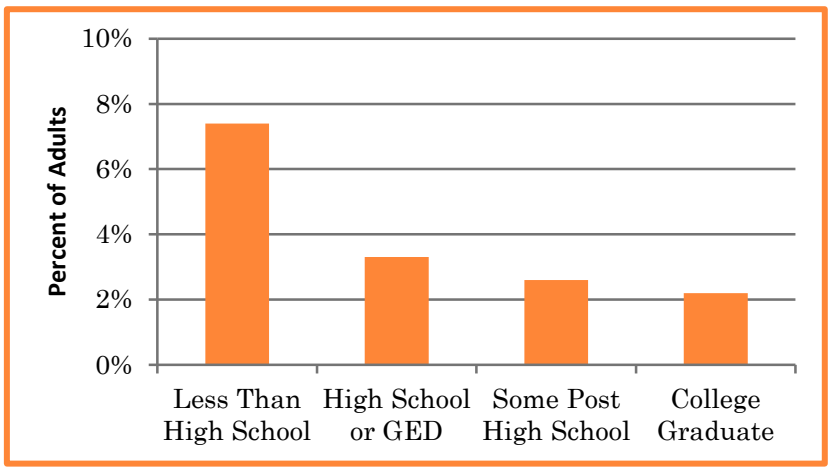

Figure 90. Adults told they had a stroke by education, 2010
Source: West Virginia Bureau for Public Health BRFSS

Exposure to vapors, gases, dust or fumes on the job can also cause COPD independently of cigarette smoking and increase the risk and severity of disease among smokers. In fact, the relationship between coal mining and obstructive lung disease has long been recognized [10].

Age-adjusted mortality rates for COPD have traditionally been higher in West Virginia than in the United States. The state's rate was the third highest in the country in 2002-2005. West Virginia's mortality rates for COPD exceed the national rates for both men and women and among all age groups [11].

West Virginia's age-adjusted mortality rates for COPD were consistently higher than U.S. rates from 1999 through 2006. In 2006, the age-adjusted COPD mortality rate in West Virginia was 54.8 deaths per 100,000 population, compared with a national age-adjusted rate of 39.3. The state's rates increased in both 2007 and 2008, to a high of 68.5 deaths per 100,000

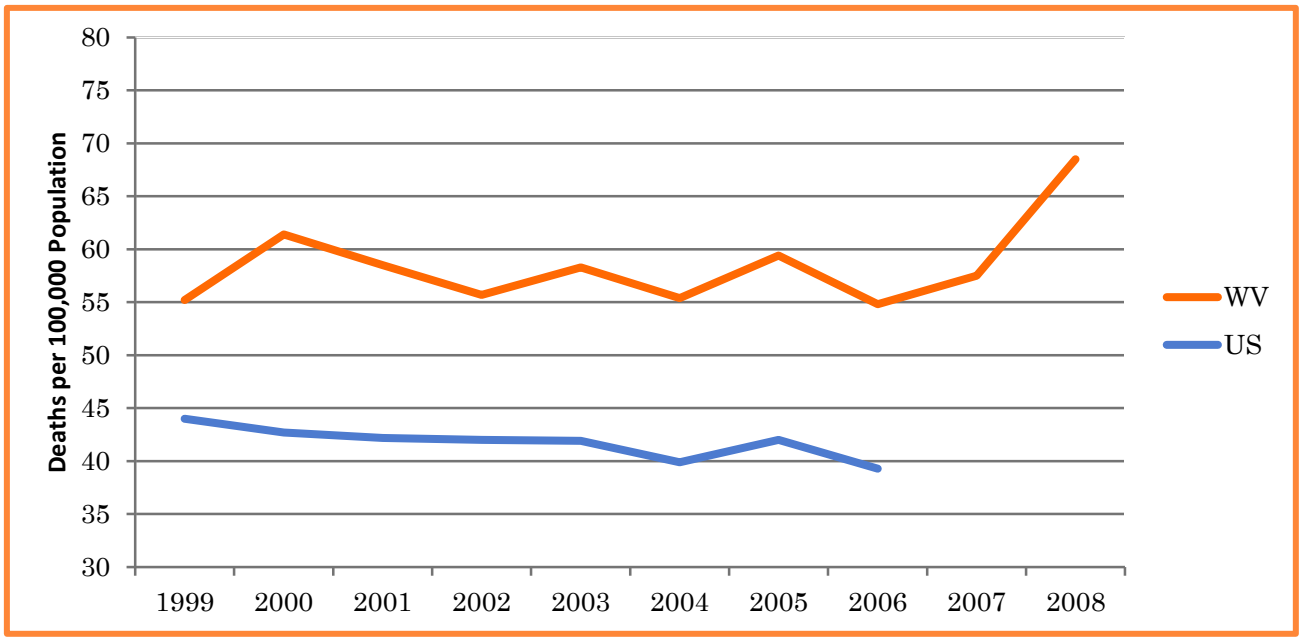

Figure 91. Age-adjusted COPD mortality rates (per 100,000), 1999-2008
Source: West Virginia Bureau for Public Health

population in 2008, a 19 percent increase from the previous year [11].

COPD was the third leading cause of death in West Virginia for eight of the nine years from 2000 through 2008. The American Lung Association estimates that in 2008, 64,000 West Virginia residents had been diagnosed with chronic bronchitis and 27,000 had been diagnosed with emphysema. The estimated prevalence of chronic bronchitis was unchanged from 2002, while that for emphysema was approximately 2 percent higher than the 2002 estimate [10].

West Virginia's rates of hospitalization for COPD have consistently been higher than the comparable U.S. rates, in some years twice the national rate. In 2006, the state rate was 45.7 hospitalizations per 10,000 population, 103 percent higher than the national rate of 22.5 [11].

Women in West Virginia were hospitalized with

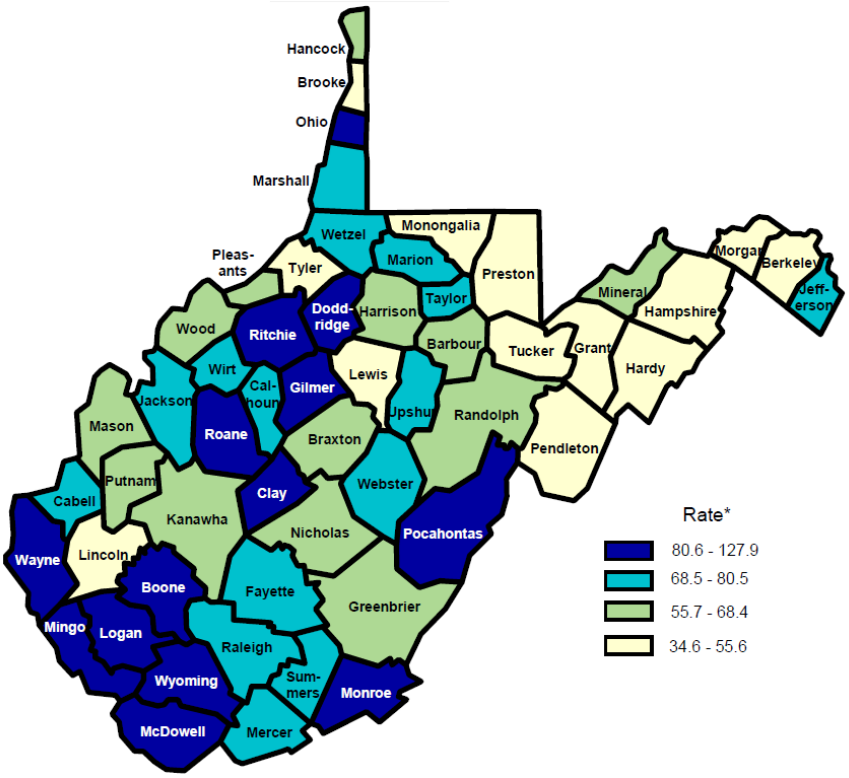

Figure 92. COPD mortality rates by county (per 100,000), 2004-2008
Source: West Virginia Bureau for Public Health

COPD at higher rates than men consistently from 1998 through 2008. The rate for women in 2008 was 59.8 hospitalizations per 10,000 population, compared with a rate of 45.7 for men [11].

In 2009, one-fourth (25.5 percent) of the state's adult population reported smoking cigarettes either every day or some days, ranking the state second among the 50 states and the District of Columbia in current smoking prevalence [11].

Chronic Kidney Disease

Chronic kidney disease (CKD) is a condition in which the kidneys are damaged and cannot filter blood as well as possible. This damage can cause wastes to build up in the body and lead to other health problems, including cardiovascular disease, anemia and bone disease. People with early CKD tend not to feel any symptoms. The only ways to detect CKD are through a blood test to estimate kidney function, and a urine test to assess

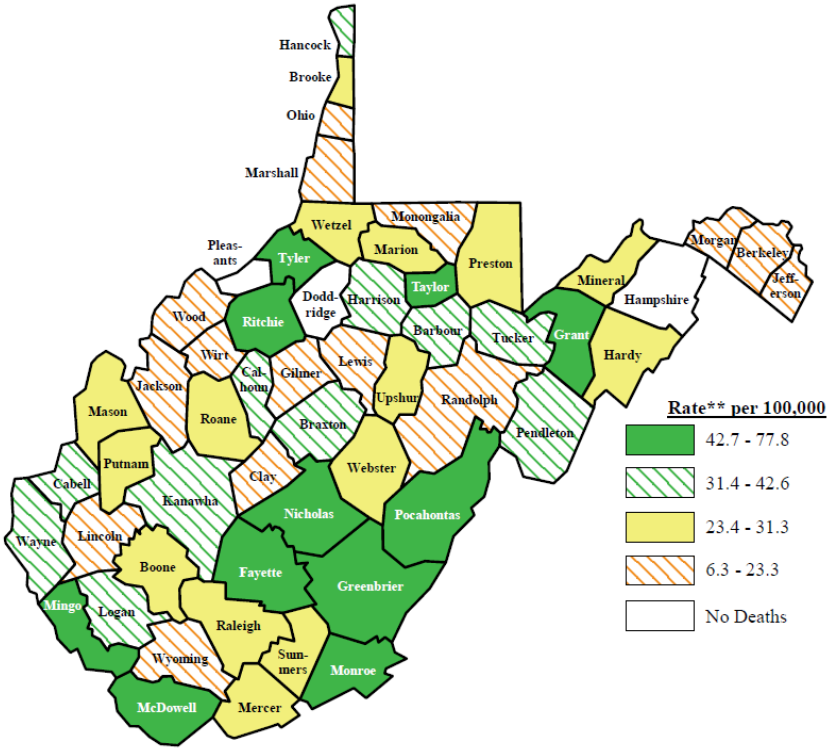

Figure 93. Kidney disease mortality rates by county, 2000-2004
Source: West Virginia Bureau for Public Health

kidney damage. CKD is usually an irreversible and progressive disease and can lead to kidney failure, also called End Stage Renal Disease (ESRD), over time if it is not treated. Once detected, CKD can be treated through medication and lifestyle changes to slow down the disease progression, and to prevent or delay the onset of kidney failure. However, the only treatment options for kidney failure are dialysis or a kidney transplant [12].

Adults with diabetes or hypertension are at an increased risk of developing CKD. Other risk factors for developing CKD include cardiovascular disease, obesity, elevated cholesterol and a family history of CKD. The risk of developing CKD increases with age largely because risk factors for kidney disease become more common as one ages [12].

West Virginia's ESRD incidence rate was consistently higher than the national rate from 2005-2009. In 2009, West Virginia had an ESRD incident rate of 452.406 per million population, the highest in the United States. The US rate was 355.391 that year [12].

In West Virginia there were 568 deaths among state residents due to kidney disease in 2004 (most recent data available), 244 deaths among males and 324 deaths among females. The overall age-adjusted rate of kidney disease mortality was 26.9 deaths per 100,000 population, with a male rate of 30.9 and a female rate of 25.1. The majority of deaths were attributed to renal failure (443, or 78 percent), with 112 (20 percent) a result of hypertension with renal disease. Most of the deaths (467, or 82 percent) occurred among West Virginians aged 65 and older [13].

Additionally, West Virginia saw an upward trend in kidney disease mortality during the decade between 1995 and

2004. The overall rate increased 83 percent, from 14.4 deaths per 100,000 population in 1995 to 26.3 in 2004. The rate among males increased by 74 percent, from 17.6 in 1995 to 30.6 in 2004, while the rate among females increased 91 percent, from 12.7 in 1995 to 24.3 in 2004 [13].

Chronic Diseases

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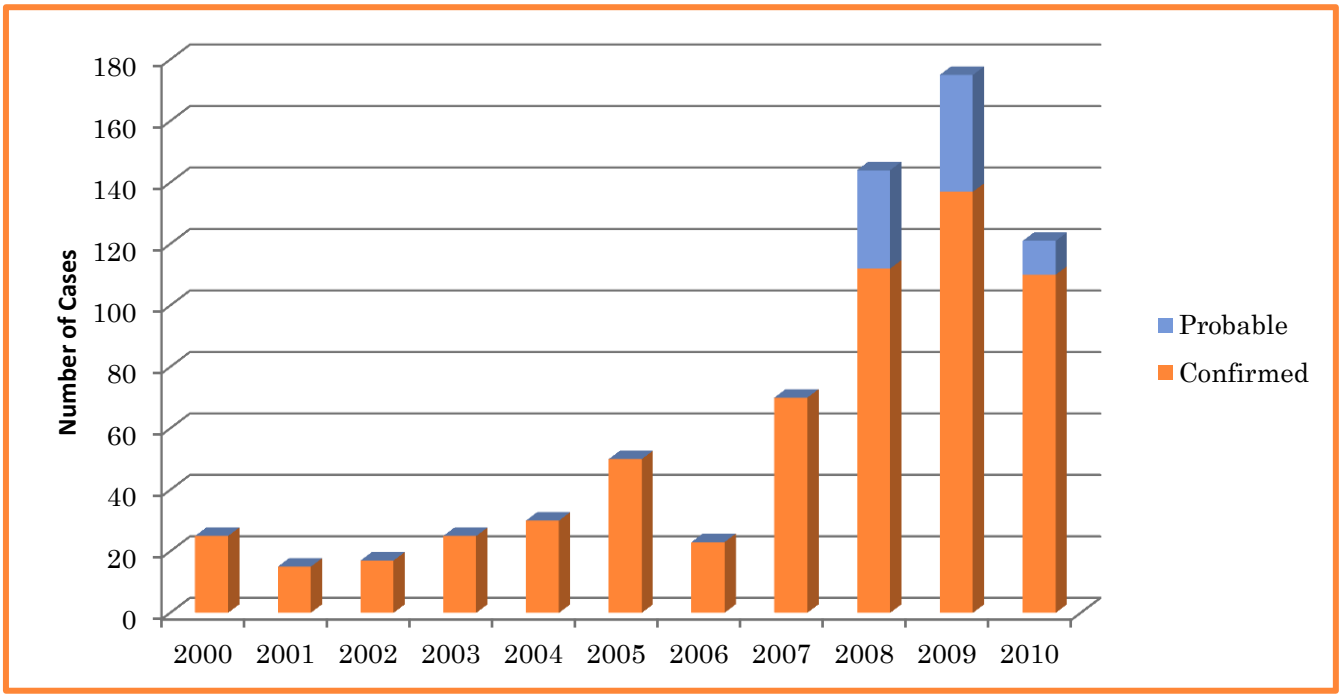


Figure 94. Cases of Lyme disease by year of onset and case status, West Virginia, 2000-2010
Source: West Virginia Bureau for Public Health, Tickborne Disease Surveillance Summary

Lyme

Lyme disease is a bacterial infection caused by bites from infected blacklegged (deer) ticks. Lyme disease is the most common tick-borne disease in the United States and West Virginia. Symptoms generally begin 3 to 30 days after the tick bite and include fever and an expanding red rash at the site of the tick bite. If not treated early with antibiotics, Lyme disease can progress over weeks to years to cause recurrent arthritis and neurological complications. Most cases of Lyme disease are reported in the northeastern and midwestern regions of the United States [1].

The number of Lyme disease cases reported among West Virginia residents has increased over the last few years. In 2010, there were 125 cases reported, primarily in three counties (Morgan, Berkeley and Jefferson Counties) [1].

Although the majority of the state saw fewer than 10 cases per county from 2000 to 2010, four counties experienced greater numbers of cases, including Hampshire and Morgan counties, with 11 to 100 cases reported, and Berkeley and Jefferson counties, with 101-398 cases reported [2].

Radon

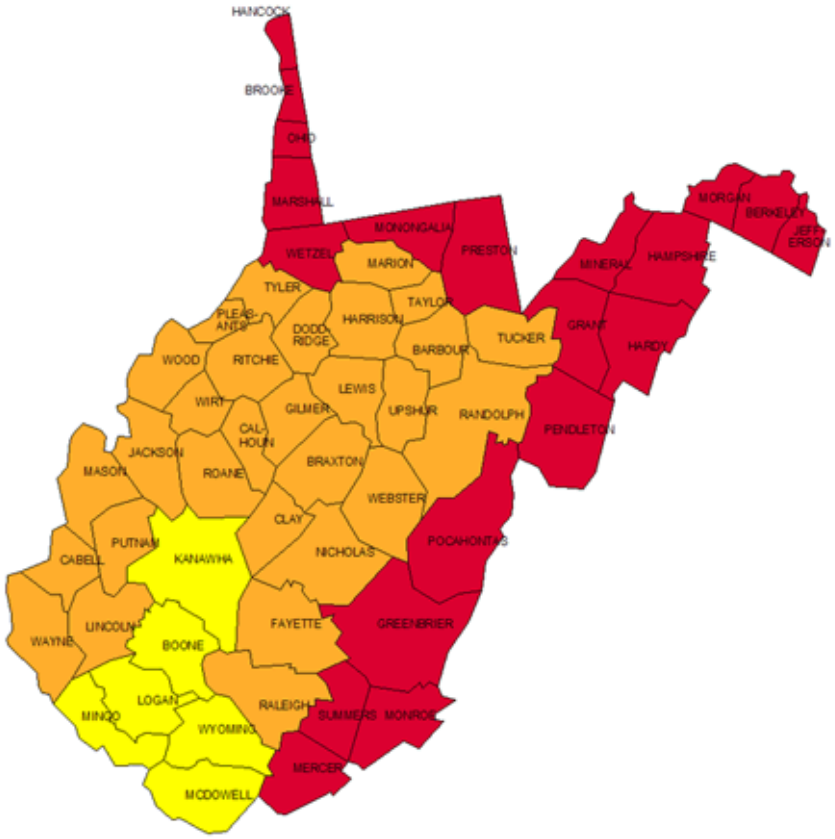
The United States Environmental Protection Agency (EPA) estimates that about 20,000 lung cancer deaths each year in the U.S. are radon-related. Exposure to radon is the second leading cause of lung cancer after smoking. Radon is an odorless, tasteless and invisible gas produced by the decay of naturally occurring uranium in soil

and water. Radon is a form of ionizing radiation and a proven carcinogen. Lung cancer is the only known effect on human health from exposure to radon in air. Thus far, there is no evidence that children are at greater risk of lung cancer than are adults. However, for smokers the risk of lung cancer is significant due to the synergistic effects of radon and smoking [3].

Radon in air is ubiquitous. Radon is found in outdoor air and in the indoor air of buildings of all kinds. The EPA recommends homes be repaired if the radon level is 4 pCi/L (picocuries per liter) or more. Because there is no known safe level of exposure to radon, the EPA also recommends that Americans consider repairing their home for radon levels between 2 pCi/L and 4 pCi/L. The average radon concentration in the indoor air of America's homes is about 1.3 pCi/L.

The average concentration of radon in outdoor air is 0.4 pCi/L or 1/10th of EPA's 4 pCi/L action level [3].

The EPA lists and identifies areas of the U.S. with the potential for elevated indoor radon levels. EPA's Map of Radon Zones assigns each of the 3,141 counties in the U.S. to one of three zones based on radon potential. Maps of these zones assist national, state, and local organizations to target their resources and to implement radon-resistant building codes. Homes with elevated levels of radon have been found in all three zones. All homes should be tested regardless of geographic location [4].



Zone 1 counties have a predicted average indoor radon screening level greater than 4 pCi/L

Zone 2 counties have a predicted average indoor radon screening level between 2 and 4 pCi/L

Zone 3 counties have a predicted average indoor radon screening level less than 2 pCi/L

Figure 95. Radon zones for West Virginia
Source: Environmental Protection Agency

Year	Population < 72 months old	Number of Children Tested	Confirmed BLLs ≥10 µg/dL as % of Children Tested	Number of Confirmed Children By Highest Blood Lead Level (µg/dL) at or Following Confirmation					
				10-14 µg/dL	15-19 µg/dL	20-24 µg/dL	25-44 µg/dL	45-69 µg/dL	≥70 µg/dL
2003	122,919	14,661	1.09%	93	26	21	18	1	1
2004	124,498	14,933	1.05%	101	35	14	6	1	0
2005	125,265	14,135	0.83%	82	19	11	5	1	0
2006	126,125	13,272	0.86%	69	24	9	12	0	0
2007	127,078	12,225	0.83%	62	18	9	10	3	0
2008	127,519	13,217	0.76%	67	18	7	8	0	0
2009	127,500	12,653	0.80%	70	13	12	5	1	0
2010	125,045	10,951	0.71%	46	16	8	8	0	0

Table 26. Confirmed blood lead levels as percentage of children tested, West Virginia, 2003-2010
Source: CDC National Surveillance Data

Since radon seeps into homes and buildings through cracks in the foundation or walls, and can accumulate over time in homes that are not properly vented, the Surgeon General issued a health advisory for radon in 2005. The advisory encourages everyone to test their home for radon every two years, and to retest after moving, making structural changes, or occupying a previously unused level of a house. When elevated radon levels are found they can be reduced, for example, by installing systems to vent radon from homes. Also, new homes can be built using easy and inexpensive radon-resistant construction techniques [5].

Lead

Lead is a naturally occurring element found in small amounts in the earth's crust. While it has some beneficial uses, it can be toxic to humans and animals [6].

Lead can be found in all parts of the environment – the air, the soil, the water and even inside homes. Exposure comes from human activities including burning fossil fuels, mining, and manufacturing. Lead and lead compounds have been used in a wide variety of products found in and around homes, including paint, ceramics, pipes and plumbing materials, solders, gasoline, batteries, ammunition, and cosmetics [6].

Lead is particularly dangerous to children because their growing bodies absorb more lead than adults do and their brains and nervous systems are more sensitive to the damaging effects of lead. Lead can affect almost every organ and system in the body. Children six years old and younger are most susceptible to the effects of lead. In children, the main target for lead toxicity is the nervous system. In rare cases, ingestion of lead can cause seizures, coma and even death. However, even very low levels of lead in the blood of children can result in permanent damage to the brain and nervous

system, leading to behavior and learning problems, lower IQ, hearing problems, slowed growth and anemia [6].

Until recently, children were identified as having a blood lead "level of concern" if the test result was 10 or more micrograms per deciliter of lead in blood. Experts now use a reference level of 5 micrograms per deciliter to identify children with blood lead levels that are much higher than most children's levels [7].

The confirmed blood lead levels ≥10 µg/dL as a percentage of children tested decreased for both West Virginia and the United States from 2003 to 2010. However, although the percentages for elevated blood lead levels for West Virginia were lower than the United States percentages from 2003 to 2007, they were higher than the U.S. percentages from 2008 to 2010.

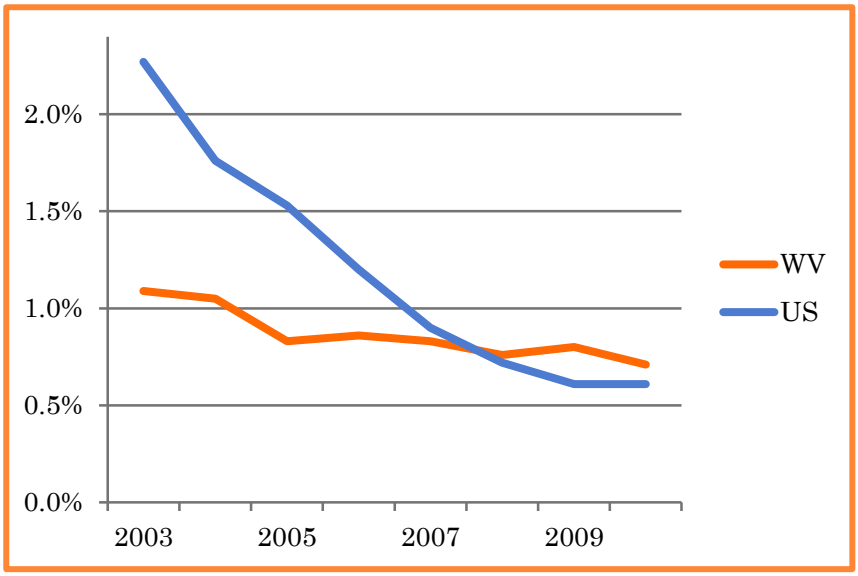


Figure 96. Confirmed blood lead levels ≥10 µg/dL as percentage of children tested
Source: CDC National Surveillance Data

Outdoor Air Pollution

Ozone

Ozone is found in two regions of the Earth's atmosphere – at ground level and in the upper regions of the atmosphere. While upper atmospheric ozone protects the earth from the sun's harmful rays, ground level ozone is the main component of smog. Ground level ozone is created by chemical reactions between oxides of nitrogen and volatile organic compounds, which come primarily from industrial facilities and electric utilities emissions, motor vehicle exhaust gasoline vapors, and chemical solvents [8].

County	2007	2008	2009	2010	2011
Berkeley	3	1	0	1	0
Cabell	27	1	0	1	3
Greenbrier	3	0	0	0	0
Hancock	10	4	0	4	1
Kanawha	13	4	0	1	7
Monongalia	6	0	0	5	1
Ohio	13	0	0	4	1
Wood	14	1	0	2	1

Table 27. West Virginia counties, number of days with maximum 8-hour average ozone concentration over the National Ambient Air Quality Standard, 2007-2011
Source: CDC National Environmental Public Health Tracking Network

County	2007	2008	2009	2010	2011
Berkeley	0.8%	0.0%	0.0%	3.4%	0.0%
Brooke	5.0%	3.3%	1.6%	1.6%	0.8%
Cabell	4.2%	0.0%	0.0%	0.9%	0.0%
Hancock	5.2%	2.5%	0.0%	0.0%	0.0%
Harrison	0.8%	0.0%	0.0%	0.9%	0.0%
Kanawha	2.2%	1.6%	0.0%	0.0%	0.0%
Marion	1.7%	0.0%	0.0%	0.0%	0.0%
Marshall	2.8%	1.1%	0.0%	0.9%	0.0%
Monongalia	2.5%	0.9%	0.0%	0.0%	0.0%
Ohio	4.3%	0.0%	0.0%	0.0%	0.0%
Raleigh	0.9%	0.0%	0.0%	0.0%	0.0%
Wood	3.4%	0.9%	0.0%	0.9%	0.0%

Table 28. West Virginia counties, percent of days with PM2.5 levels over the National Ambient Air Quality Standard, 2007-2011
Source: CDC National Environmental Public Health Tracking Network

Ground ozone can harm human health—typically on hot, sunny days when ozone can reach unhealthy levels. Even relatively low levels of ozone can cause health effects. People with lung disease, children, older adults, and people who are active outdoors may be particularly sensitive to ozone [8].

Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground level ozone also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue [8].

Since 2007 West Virginia counties have experienced seven or fewer days per year with maximum 8-hour average ozone concentration over the National Ambient Air Quality Standard (NAAQS) (Table 27) [12].

Particulate Matter

"Particulate matter," also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles [9].

The size of particles is directly linked to their potential for causing health problems. The EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs [9].

Particles of concern include "inhalable coarse particles" (such as those found near roadways and dusty industries), which are larger than 2.5 micrometers and smaller than 10 micrometers in diameter, and "fine particles" (such as those found in smoke and haze), which are 2.5 micrometers in diameter and smaller [9].

Particle pollution - especially fine particles - contains microscopic solids or liquid droplets that are so small they can get deep into the lungs and cause serious health problems. People with heart or lung diseases, children and older adults are the most likely to be affected by particle pollution exposure.

Year	Number	Rate
2003	5	0.28 (Unstable)
2004	9	0.51 (Unstable)
2005	6	0.33 (Unstable)
2006	19	0.94
2007	3	0.18 (Unstable)

Table 29. West Virginia number of deaths and age-adjusted rate of death from CO poisoning (per 100,000 population
Source: CDC National Environmental Public Health Tracking Network

Particle pollution exposure has been linked to heart problems, aggravated asthma, decreased lung function and other respiratory problems [10].

Hancock County in West Virginia has experienced the largest percentage of days with the PM2.5 levels over the NAAQS (5.2 percent in 2007). Since 2007, however, West Virginians have seen less than 3.5 percent of days with the M2.5 levels over NAAQS (Table 28) [12].

Indoor Air Pollution

Carbon Monoxide

Carbon monoxide, or CO, is an odorless, colorless gas that can cause sudden illness and death [11].

Carbon monoxide is found in combustion fumes, such as those produced by cars and trucks, small gasoline engines, stoves, lanterns, burning charcoal and wood, and gas ranges and heating systems. CO from these sources can build up in enclosed or semi-enclosed spaces. People and animals in these spaces can be poisoned by breathing it [11].

High levels of CO inhalation can cause loss of consciousness and death. Red blood cells pick up CO quicker than they pick up oxygen. If

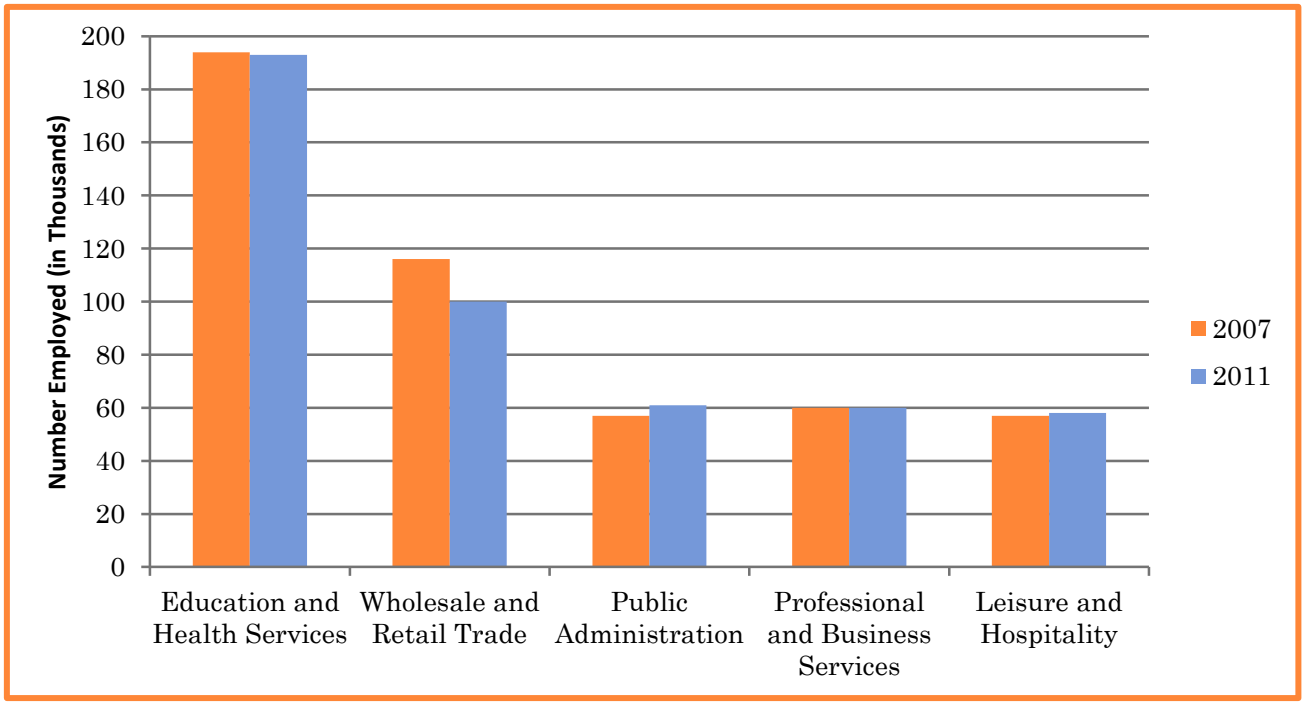


Figure 97. Number employed in West Virginia (in thousands), 2007-2011
Source: U.S. Bureau of Labor Statistics

there is a lot of CO in the air, the body may replace oxygen in blood with CO. This blocks oxygen from getting into the body, which can damage tissues and result in death [11].

Each year, more than 400 Americans die from unintentional CO poisoning, more than 20,000 visit the emergency room and more than 4,000 are hospitalized due to CO poisoning. Fatality is highest among Americans 65 and older [11].

In West Virginia, fewer than 20 people die from CO poisoning each year, with the highest number of recent deaths at 19 in 2006. Death rates due to CO poisoning remain under 1 death per 100,000 in population (Table 29) [12].

Occupational Health

In 2011, approximately 742,000 individuals were employed in West Virginia. The five industries employing the most workers in West Virginia were education and health services, wholesale and retail trade, public administration, professional and business services and leisure and hospitality. Mining was ninth [13].

In 2011, West Virginia had 43 fatal occupational injuries, all male and all white. The age group with the most fatalities was 45 to 54 years. The industries with the highest fatality numbers were natural resources and mining, trade, transportation, and utilities, and construction, accounting for 77 percent of all work-related fatalities. The most common causes of death were transportation incidents, contact with objects and equipment, and falls, slips and trips [14].

In 2011, West Virginia had approximately 23,100 nonfatal occupational injuries and illnesses. In 2010, the figure was approximately 25,200 [14].

Community Design

Public health problems in the U.S., such as motor vehicle-related injuries, obesity, physical inactivity, and breathing and heart problems related to air pollution are all influenced by the design of communities [15].

Designing communities that encourage healthy choices is critical to improving the health and quality of life of community members.

Year	Number	Male	Female	White	Black
2007	61	61		58	
2008	53	47	6	51	
2009	38	38		34	4
2010	95	89	6	91	4
2011	43	43		43	

Table 30. West Virginia occupational fatalities, 2007-2011
Source: U.S. Bureau of Labor Statistics

Community & Environment

The primary way to promote health through community design is to make sure there is access to many types of transportation, healthy food, safe housing and public spaces. These include access to public transportation, sidewalks and bike paths, stores with fresh fruits and vegetables, safe housing and public spaces such as parks [15].

These elements influence the health of the environment and personal behaviors. For example, neighborhoods that are far from everyday places, such as schools and workplaces, and have busy streets and few sidewalks may have increased air pollution from motor vehicles. These types of neighborhoods may discourage people from walking or bicycling.

Community design is an important public health issue because it is closely connected to many health and behavioral issues.

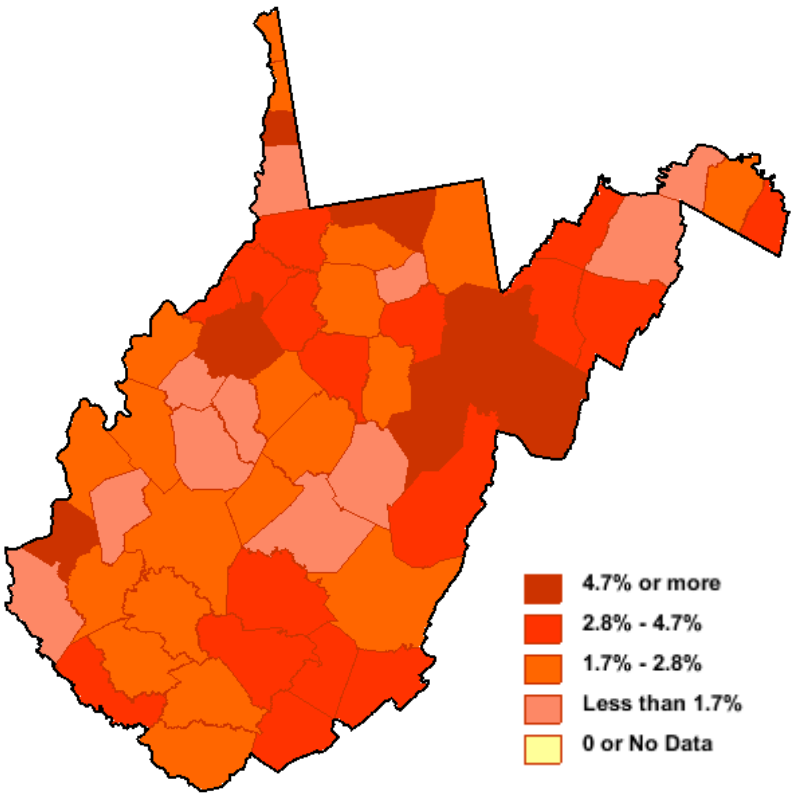


Figure 98. Percentage of workforce who walks or bikes to work
Source: American Community Survey 2010

Many of the public health actions used to improve one health outcome also help other health outcomes. For example, reducing the speed limit in neighborhoods can reduce the number of motor vehicle-related injuries and encourage more people to be active by make it safer to walk and bicycle.

In West Virginia in 2010, only nine percent of the population lived within half a mile of a park. During 2006-2010 among West Virginia workers over age 16, 0.91 percent took public transportation, 0.15 percent rode a bicycle and 2.88 percent walked to work [16].

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Methodology

Purdue Healthcare Advisors wrote this state health profile in the fall of 2012. All data is secondary data, and was collected from sources available to the public. Every effort was made to use the most current data available at the time. Also, since numerous data sources were used, some facts and figures may vary marginally throughout the document.